DOCUMENT RESUME

ED 067 837 EM 010 231

AUTHOR	Volker, Roger; And Others
TITLE	Using Instructional Media; A Guidebook to Educational Media Education 305B.
INSTITUTION	Iowa Univ., Iowa City. Coll. of Education.
PUB DATE	71
NOTE	96p.; See also EM 010 232
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Audiovisual Aids; Behavioral Objectives; Display Panels; *Educational Technology; Films; *Guides; Instructional Materials Centers; *Instructional Media; Overhead Projectors; Photography; Slides; Tape Recordings; *Teacher Education; Transparencies; Video Tape Recordings; Visual Aids; Visual Literacy

ABSTRACT

Designed for use in an education course in techniques that teachers use in presenting materials to a class, this guidebook consists of detailed descriptions of the operation and instructional utility of a wide range of educational media. The first section provides an introduction to the course and includes information about course objectives, equipment available, assignments, and grading. Other sections center upon instructional displays, behavioral objectives and scripting, still photography, motion photography and video taping, visual literacy and spirit duplicated materials, transparencies and the overhead projector, and audio taping and equipment. Each section is fully illustrated and has detailed instruction. (SH)

ED 067837

USING INSTRUCTIONAL MEDIA

A

GUIDEBOOK TO EDUCATIONAL MEDIA

EDUCATION 305B

ROGER VOLKER

EUGENE BALZER

LORAN BRAUGHT

JOHN CAIRNS

COLLEGE OF EDUCATION

IOWA STATE UNIVERSITY

Fall 1971

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EM 010 931

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I. INTRODUCTION TO EDUCATIONAL MEDIA

Education 305b is one of the series of courses in the Teacher Education program. It is usually taken concurrently with Education 305A--Methods of Teaching. Both courses emphasize techniques that teachers use in presenting material to a class. Students usually take the courses as juniors, and you will find a wide variety of subject matter represented by them. Both elementary and secondary students are in the class, preparing to teach language arts, social studies, agriculture, science, math, and other areas.

Format

Your class in Education 305b meets for one 2-hour session each week. Each session deals with a different aspect of education media. For example, techniques in teaching with the overhead projector, scripting, steps in making slides, film loops and tape recordings, the use of the VariTyper Headliner and LeRoy lettering sets for producing signs and transparency originals, practice with the television tape recording systems, the spirit duplicator, dry mount press, and a "projector practicum" are typical topics.

The classes are small - around twenty students - for a good reason. We want to provide you with the opportunity for teacher-student and student-student interaction. Class time will be set aside for you to talk with your instructor about your project. You will also have class time to work on projects in the Instructional Resources Center. Because class time is always premium, you will need to organize your thoughts on the projects you plan to do.

Role of the Instructional Resources Center

Industry has developed an exciting array of devices to help you teach more effectively. The movie projector, tape recorder, and filmstrip projector have not been replaced. But they have moved aside to make room for newer instructional devices. Now you can use easy-to-operate slide and movie cameras, portable tape recorders for on-the-spot interviews, single concept films, overhead projectors and television tape recorders.

The Center contains two types of instructional media. One type, called software, includes major textbooks for kindergarten through 12th grade. Software also includes transparency originals, (both commercial and student-made), catalogs of films and other teaching materials, brochures, charts and pamphlets, films, slides, and tapes.

MEDIA - Instruments of communication including both hardware and software.
SOFTWARE - Printed materials, films, transparencies, and any non-mechanical media.
HARDWARE - Machines in which software may be used.

The second segment of the Instructional Resources Center includes hardware. We have nearly one hundred and fifty machines for students to use. Practically every type of educational material may be made. The Instructional Resources Center has a small booklet available free which describes the production capabilities. We suggest you refer to that booklet entitled "Resources for Teaching with Media."

To make the Instructional Resources Center easy and convenient for student use, certain items are for sale in the Center. These include miscellaneous sizes of dry mount plastic, chartex, transparency

plastics of different types, ditto masters and a number of other items that are used in the Center to make teaching aids.

The staff of the Instructional Resources Center is always anxious to help you. However, we have no graphic artist or full time staff member who produces materials for students. So we have developed an atmosphere of "do-it-yourself." You will find most machines quite simple to use. To aid you in teaching yourself, we have posted a large chart showing the step-wise sequence to be followed in using each machine.

For the more complex processes such as using the dry mount press, making diazo transparencies, and constructing bulletin boards and flannelgraphs, there are a number of 16mm sound movies available in the Instructional Resources Center. You may view these any time, as often as you wish. Used in this way, the 16mm sound film is actually a teaching machine. Also, since you will thread and operate the projector yourself, you will learn about projectors as a side benefit.

For more involved procedures, such as operating a movie camera, making a photo essay, or writing a script, the Instructional Resources Center uses a new teaching process. It is called the audio-tutorial system. A tape recording talks the student through the process to be learned. Additional teaching aids may be used in the learning process. Examples are: films and guidesheets. Using the instructions on the recorded lesson you may teach yourself.

Objectives of Education 305b

We have stated the objectives in terms of the kinds of behavior you should exhibit after you have completed the course. Objectives

stated in this way are called behavioral objectives. Incidentally, they are the same types that you should use in working out your final presentation. Begin now to determine what your class should be able to do after they see and hear your presentation, not only in 305b, but in future classroom teaching.

1. You should be able to make and use a variety of educational media.
2. You should be able to list an array of media valuable for teaching your particular subject area.
3. You should be able to plan, script, produce, and present a 5-8 minute lesson in class, using media.

Creativity and Grading

Your imagination, insight, and intuition, are valuable assets in this course. Constantly try to use your wildest ideas, in making teaching materials. Create. Invent. Improvise. Put dreams into action. Try schemes for conveying information. The students you will be teaching are very different from each other. No single method will work for all of them. It is likely that you will need dozens of approaches to teaching each set of concepts.

CHECK-OUT POLICY

Equipment - may be checked out for a 2-day period. 25¢ per hour and $2.00 per day fine if overdue. Avoid checking out projectors and tape recorders if you wish to make synchronized tapes. Do this work in the Center.

Books - may be checked out from 4:00 p.m. to 10:00 a.m. the next day. Fine schedule is 25¢ first hour, 5¢ each hour thereafter up to $10.

A Word on Concepts

What they are. Webster's Dictionary says a concept is "an abstract idea generalized from particular instances", or "any notion combining elements into the idea of one object." A concept, then, is a general principle or axiom; an idea which categorizes several closely related examples.

For example, a teacher may attempt to explain or teach every possible instance of what happens to items when they are heated (eg. - thermometer, jet propulsion, etc.); or he could teach the concept that "elements usually expand when heated," then allow students to discover examples or uses of that concept. The language teacher shows students the concept that "sentences express a complete thought"; the math teacher introduces the "associative principle of addition"; the art teacher explains the concept of "basic colors"; or the music teacher explains the "rules for reading notes".

Why do teachers need to define and teach concepts? No one can hope to learn or teach all the knowledge available, even in any single subject area. The most efficient learning is devoted to learning general ideas and skills which can be used in many different but related situations. Learning patterns of solving problems will prepare us for attacking new problems without having to memorize each individual solution. Not only does learning by concept allow greater independence in study, it also provides training in effective learning and thinking.

Specifying concepts in Education 305b assignments. We ask you to specify the concept to be taught, through the use of spirit duplicated materials, transparencies, and dry mounted materials. The cover sheet for these three assignments has a place for you to indicate "Concepts to be Taught".

Grading

There are two levels in the 305B grading system; required projects, and contract. The required projects, if satisfactorily completed, qualify you for a C in the course. On contract you can qualify for a B or an A, depending on the projects you elect.

Date Due Required Projects (To qualify for grade of C)

_____ 1. Dry Mounted Materials. Produce one sample of each of the following:
(a) Dry mount tissue. Mount any educationally useful copy on a hard surface with dry mount tissue, which should not be visible around the edge of the copy.
(b) Chartex. Mount any educationally useful copy on chartex. The chartex should fit the copy firmly and smoothly.
(c) Seal lamin. Seal laminate any educationally useful copy. The finished product should not coil (suggest lamination of both sides or affix to solid material), and should be free of any surface wrinkles or defects.
On the cover sheet for "Dry Mounted Materials" describe the concept to be taught through these materials.

_____ 2. Script. Develop a complete script for teaching a single concept in your major field using at least two forms of media. Each script frame should identify the media used, a sketch or clear description of the content of the media product (written in the frame), and an accompanying verbal presentation in outline or ver batum form. Scripts are to be prefaced with a statement of the (a) grade level and subject area, (b) behavioral objectives.

_____ 3. Contract. Make out your contract, specifying the projects you plan to do, and whether you are going for an "A", "B", or "C".

_____ 4. Spirit Duplication. Produce ten copies of an original spirit duplicating master in at least two colors. The ten copies are to be accompanied by a one-paragraph statement of (a) grade level and subject area, and (b) concept being taught. Copies are to be clear and unwrinkled.

_____ 5. Transparency. Produce a thermal transparency from your own original and frame the transparency. The content should visually communicate a key point of a concept related to your field of study. A one-paragraph statement to accompany the transparency should include (a) grade level intended, (b) subject, and (c) concept being taught. Use at least one of these techniques; LeRoy lettering, dry transfer letters, stencil, or Varityper.

_____ 6. Final Presentation. Script and present in class a lesson in your major field with the aid of at least two media. Presentations should be limited to five to eight minutes. Students may use any item developed for other projects or items produced newly for this presentation. Observing students will share responsibilities for constructive critique of presentations and participate in role-playing the target audience.

Attendance. Each student is expected to attend each class unless specifically excused by the instructor for valid cause.

Contract (To qualify for grade of B do one project below; for an A do two.)

1. Still Photography - Develop a photo essay in your subject area, using color prints or black and white taken specifically for this project.

2. Still Photography - Develop a slide presentation in your subject area, specifically for this project.

3. Motion Photography - Script and produce a super 8 single-concept film in your subject area. Sound is not required.

4. Video Tape - Script and produce a single-concept video tape in your subject area, with sound.

5. Transparency - Make one from your own original, with at least one overlay. Include color, and one or more of these techniques: stencil or LeRoy lettering, VariTyper Headliner, dry transfer letters.

6. Bulletin Board - Design and produce a bulletin board display using photographs, drawings, or magazine pictures.

7. Hook 'n Loop Presentation - Design and produce a hook 'n loop presentation that you could present to sequentially develop a single concept in your subject area. Use drawings, photos, or magazine pictures.

8. Flannelboard - Design and produce a flannel board, following guidelines in #7 above.

9. Media Club Plan. Develop a detailed outline for the establishment of a co-curricular school Media Club which includes:
   (a) Purposes of such a club.
   (b) Pattern of organization for club meetings.
   (c) Plan for instruction of equipment to students.
   (d) Plan for evaluating student proficiency with equipment (develop actual check-lists for at least 4 media machines)
   (e) Plan for utilizing student proficiencies with equipment.

10. Audio Tape - Script and produce an audio tape about 5 minutes long to teach a concept in your subject area. Include dubs from records, and a musical theme.

11. Flip-Chart - Design and produce an individualized instruction lesson using a chartex/cardboard easel and several photos, drawings, or pictures from magazines.

12. Models - Design and produce a 3-dimensional model using plastic, styrofoam, cardboard, or plaster. See your instructor for special instructions. The model should be appropriately painted and suitable for use in teaching.

13. Display case - Design and put up a display in one of the lighted cases in the hall near the Instructional Resources Center.

14. Learning Packet/Instruction Booklet - Design and produce an instruction booklet for individualized instruction. Use ditto materials in two or more colors, dry-mounted materials, audio tape, or any other appropriate media.

15. Y O D - If none of the above projects appeal to you, work out a project of Your Own Design.

ATTENDANCE POLICY

YOUR LETTER GRADE WILL BE DROPPED BY A FULL LETTER GRADE FOR EACH 2 CLASS SESSIONS MISSED UNLESS (1) YOU MAKE THE CLASS UP BY ARRANGING WITH YOUR INSTRUCTOR TO ATTEND ANOTHER SECTION IN WHICH THE SAME TOPIC IS COVERED, OR (2) FURNISHING AN EXCUSE FROM A VERIFIABLE SOURCE.

LATE ASSIGNMENTS

NO ASSIGNMENT WILL BE ACCEPTED AFTER IT IS 1 WEEK OVERDUE. THE COURSE GRADE WILL BE DROPPED BY A FULL LETTER FOR EACH LATE ASSIGNMENT, AT THE DISCRETION OF THE INSTRUCTOR, EVEN THOUGH IT IS TURNED IN.

Some Media to be Used in Teaching from the Instructional Resources Center

After the slide tour of the Center, divide into small discussion groups. As a group, choose five of the media below. Arrange into a priority list, with those "most valuable for teaching" at the top of the list.

Partial List to Choose From

Opaque projector

Overhead projector and transparencies

Slide projector and slides

Film loop or single-concept film

Super 8 movie camera

Copy stand

Tape recorder

Dry Mount press

Cassette tape

Spirit duplicator

Video tape recorder

Selectric typewriter

Thermofax machine

"107" Copier

VariTyper Headliner

LeRoy lettering set

Dry-transfer letters

Audio-tutorial systems

Texts, pamphlets, brochures, curriculum guides, teacher's guides

Filmstrip projector and filmstrips

Priority List of "Most Useful Media"

_____

_____

_____

_____

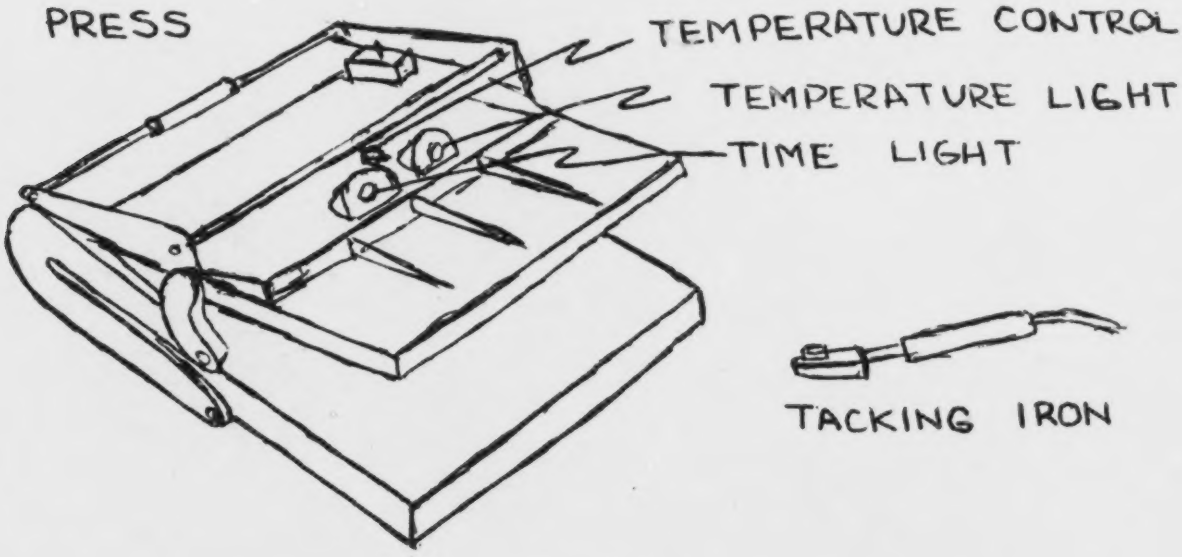
_____

II. INSTRUCTIONAL DISPLAYS

Pictures, graphs, maps, and other illustrations are constantly used in the classroom. In this section you will become acquainted with simple and quick methods of mounting and preserving display materials.

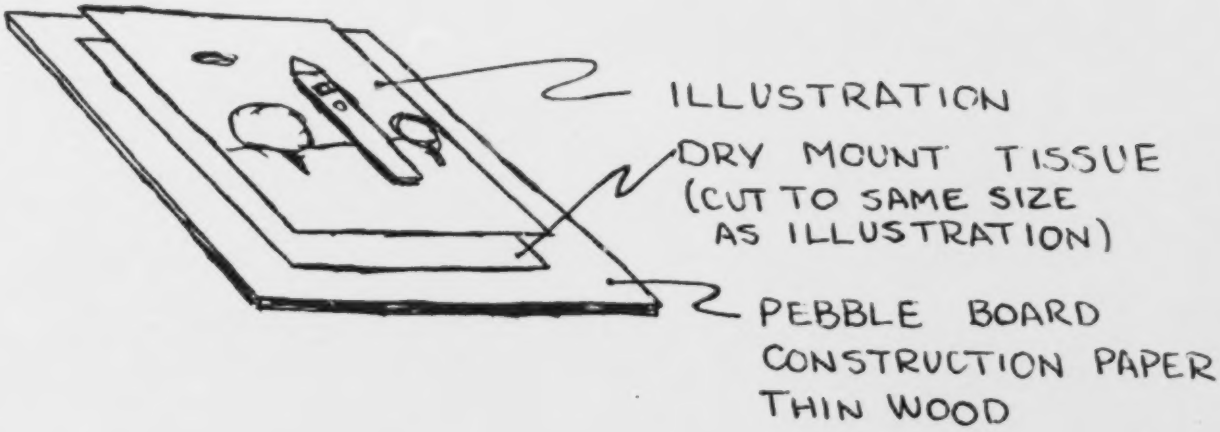
Dry Mount Press

The dry mount press is a mechanical device which uses heat and pressure to mount, laminate, or apply a cloth backing to graphic materials. The three materials used with the press are dry mount tissue, seal-lamin, and chartex.



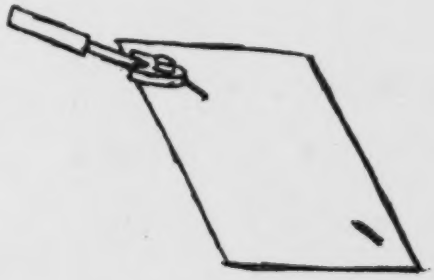
Dry Mount Tissue

Dry mount tissue is paper which is sticky on both sides when heated. This allows you to mount illustrations to pebble board, wood, cloth or cardboards.



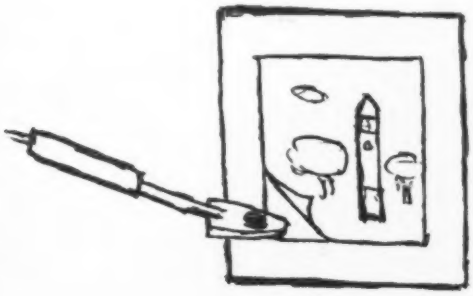
TEMP.	TIME
225°	10 SEC.

1. Preheat both illustration and cardboard.
2. Adhere the dry mount tissue to the back of the illustration by touching the tacking iron directly to the tissue in two corners.



3. Trim the illustration and tissue together on all sides.
4. Align the illustration on the cardboard.

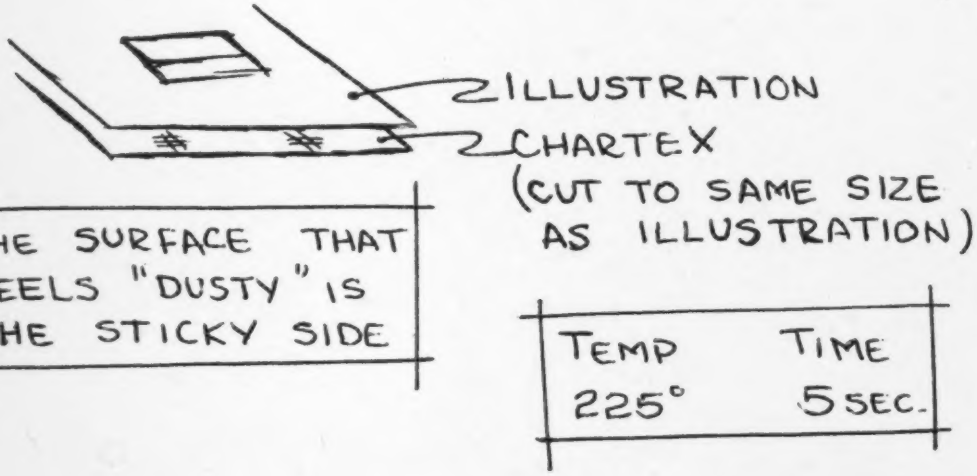
5. Tack the tissue to the cardboard by picking up the corners of the illustration (opposite corners than were used in step #2) and touching the tacking iron directly to the tissue.



6. Cover with a newspaper carrier and seal in press.

Chartex

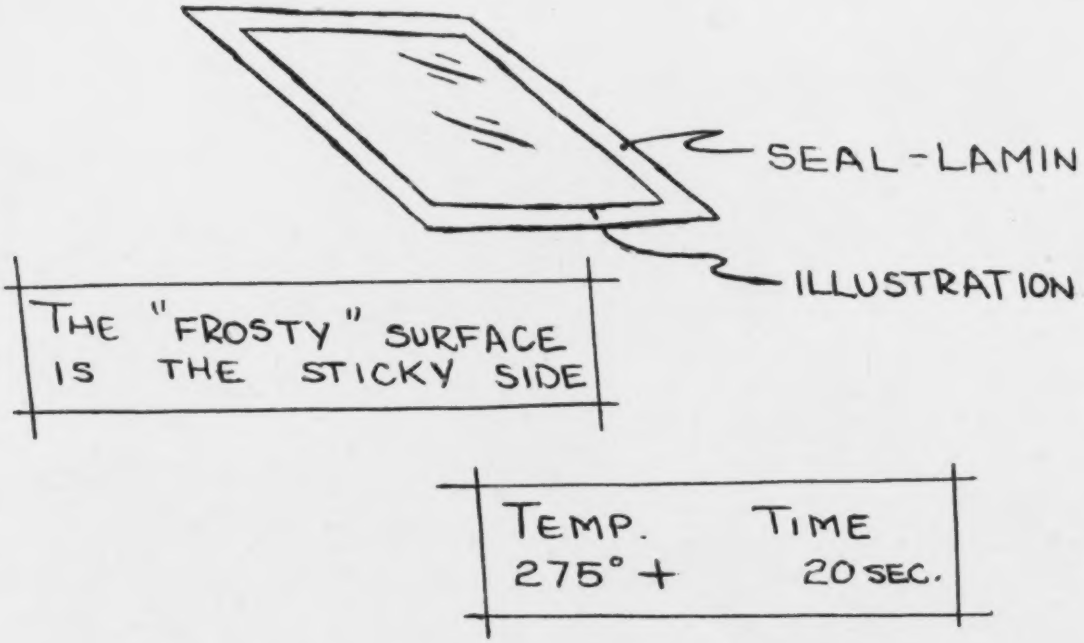
Chartex is cloth which is heat sensitive on one side. It can be used to add durability to illustrations and still remain flexible.



1. Preheat illustration.
2. Adhere chartex to the illustration by running the tacking iron on the back side of the chartex.
3. Cut cloth to exact size of illustration.
4. Cover with newspaper carrier and heat in press.

Seal-Lamin

Seal-lamin is a clear plastic laminating film placed over the surface of an illustration. This adds a permanent protection to classroom displays.



1. Preheat illustration.
2. Cut seal-lamin about 1/2 inch larger than illustration.

3. Place illustration and seal-lamin in newspaper carrier. Do not tack or cut to size. The excess seal-lamin will stick to the newspaper carrier that you will discard.
4. Heat in press.
5. Trim illustration to size and discard the newspaper carrier.

To dry mount, seal-lamin, or chartex all at once -------- DO HIGHEST TEMPERATURE WORK FIRST

Flannel Board

The flannel board technique can be used very effectively in all types of classrooms. Various objects in the form of "cut-outs" can be placed on the board. This makes it possible for step-by-step idea development.

Hints

Use "large" illustrations

Use bright, light colors for your "cut-outs" because the board is dark or neutral in color.

Marking pens can add detail to your "cut-outs".

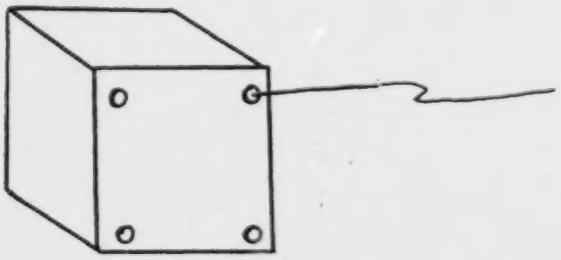
Felt "cut-outs" work the best on flannel boards.

Coarse sandpaper on the back works the best for paper illustrations.

Hook and Loop

The hook and loop board can be used for both presentations and permanent display of three-dimensional objects. The board which can be portable or permanently mounted has a loop fabric covering. When hooks glued to the back of your illustration come in contact with the loops a binding takes place.

The binding is so great that only small amounts of hooks are needed to support large three-dimentional objects.



Hooks about 1/4 inch in size glued to the back of your object.

DO-IT-YOURSELF HOOK 'N LOOP BOARDS

You can get hook 'n loop fabric at: STEPHENSON'S FABRICS
2428 Lincoln Way
(next to Student Supply Store
in campustown)

They have off-white and gold.

Loop fabric is 4' wide, sells for $8.00/yard.

Hook tape is available at the Instructional Resources Center, or at Stephenson's.

Instructions for Making a Hook 'n Loop Board

1. Use Celotex (cornboard) for the board itself. Get at lumber yard or at a bookstore. Lumber yard prices are lower, about $3.00 for a 4 x 8 sheet. You can buy any size you want less than that.

2. Buy fabric same size as Celotex.

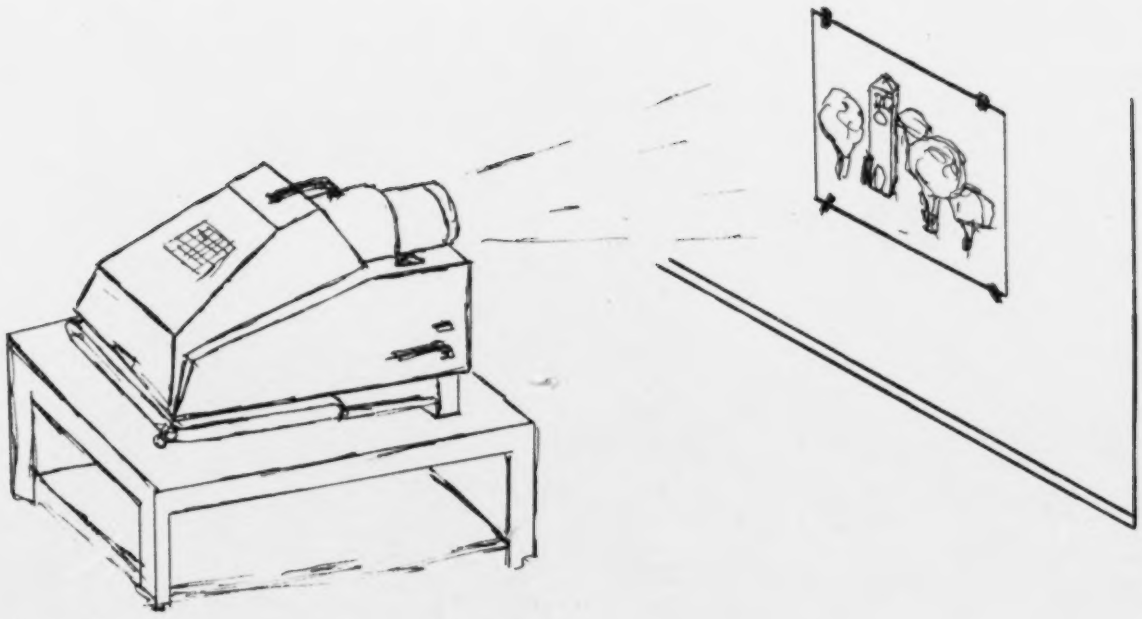
3. Use wheat paste (wallpaper paste) to glue hook 'n loop fabric to Celotex. Instructional Resources Center will sell you the paste for 15¢. Apply paste to entire surface of board with a paint brush. Paste should be consistency of thick gravy. Make sure entire board is covered with plenty of paste.

4. Apply fabric, sponge-rubber side down, right after you put the paste on.

5. That's it! Board will dry overnight and is ready for use. You may want to put a thin frame around it.

6. Glue hook material on back of objects to be put on board with Elmer's glue. Let dry overnight. Pieces ¼" square will be adequate. (The hook tape purchased at Stephenson's will not need to be glued as it comes with an adhesive on the back.)

Using The Opaque Projector



To Enlarge - Projector must be about 6' from the surface it will project on, in order to focus properly.

- Use masking tape to attach the poster board or paper to the wall.
- Trace over projected image with a felt pen or pencil.
- Moving the projector away from the wall makes the image larger. Refocus, of course.
- Some opaque projectors have a 3-position switch; off - fan on - fan & light on.

To Reduce - Ask for help in adjusting the projector lens if you wish to reduce the size of an image.

III. BEHAVIORAL OBJECTIVES AND SCRIPTING

Both student and teacher will perform best when specific goals and standards of accomplishment are clearly defined at the beginning. The statement of what is to be learned, under what circumstances it is to be learned, and what standards of performance are acceptable is called a behavioral objective.

The most common difficulty in developing behavioral objectives is the use of ambiguous terms in describing student performance or behavior. There is no way for a teacher to measure when a student "knows", "appreciates", "understands", or "recognizes" some learning concept unless the student does something to prove he "knows". It is necessary for the student to "identify", "solve", "list", so that his performance can be evaluated.

BEHAVIORAL OBJECTIVE: In the space below list eight verbs that could be used in behavioral objectives. Also list eight verbs that are not suitable.

Behavioral Verbs	Non-Behavioral Verbs

Not all valuable learning can be easily observed and measured. One does not measure a personal position on a controversial issue, for example. But the use of logical sequence leading to a personal position can be demonstrated and measured. Behavioral objectives cannot facilitate measurement of all learning, but they can provide a pattern for evaluating achievement.

Development of skill in preparing adequate behavioral objectives requires more than the scope of 305B course of studies will allow. It takes practical experience and continual effort to become truly proficient in developing behavioral objectives. However, one of the specific goals of 305B is to introduce students to realistic experiences in preparation for a teaching career, including development and presentation of successful lesson plans for teaching. With this in mind, selected student projects require that behavioral objectives be developed on an introductory level.

For projects requiring behavioral objectives, follow these guidelines:

1. Describe the concept in terms of what the student should be able to do when he's learned it.
2. Describe the standard for satisfactory performance (Examples: 75% accuracy, list 8 out of 10 terms, use 3 out of 5 words correctly in a sentency).
3. Describe the pretest and post test to be used.

An example of a simply behavioral objective is: "Given three pictures of basic geometric forms, two of which are identical, the concept of visual discrimination (identifying differences visually) will be demonstrated when students correctly identify the dissimilar form in

at least five of six such sets."

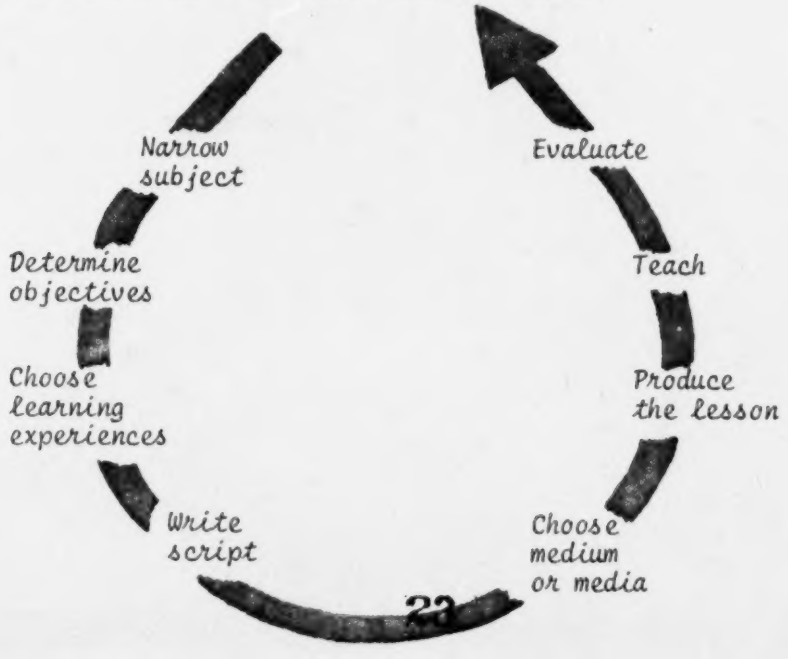
Behavioral objective statements are required in 305B to accompany the script project and the student's final presentation. These projects also require the designation of grade level the lesson is intended to serve and the subject area of the lesson (ie. - 10th grade math).

SCRIPTING

"Script" may mean different things to different people. They mean one thing to a television producer, another to someone writing a radio show, and still another to a student in education. For Education 305b, a script is simply a plan for teaching. It shows what media are to be used, and when. It has brief instructions on what the content of the media should be, and how the media relate to the teacher's teaching activities, and may indicate what the learner is to do. There also should be technical instructions relative to the production of the slides, transparencies, tapes, or other media in the lesson.

Planning the Script

This model may help you understand the process of scripting, and how it fits into the total instructional scheme.



HANDY-DANDY FORM FOR DO-IT-YOURSELF

BEHAVIORAL OBJECTIVES

Given (type of evaluation), the student will (type of performance), with (% or performance level) accuracy.

Given _____

_____

the student will _____

_____

with _____

_____ accuracy.

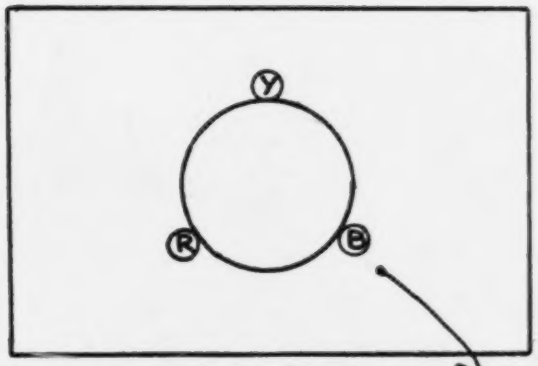
- Examples -

Given a line drawing of a dog's spleen and attached structures, the student will label the blood vessels, and spell them with 100% accuracy.

Given a series of black and white photographs of lung tissue, the student will identify lungworm pneumonia and bacterial pneumonia, and list at least 2 characteristics of each type of pneumonia upon which he based his choice.

Writing the Script

When you have selected a subject, written the objectives, and chosen the learning activities you are ready to write the script. The example below illustrates what kind of information is needed for each frame in the script. We use script sheets with four frames, so that the format of the example below applies to each of the four frames. On the next page there is a student-made script from a past 305b class.



Medium Used Transparency

The color wheel is based on three primary colors:

1. Yellow
2. Red
3. Blue

From these three colors we can make other colors on the wheel by combining two adjacent colors.

INDICATE THE MEDIUM USED; TRANSPARENCY SLIDE FILM

SIMPLE DRAWING INDICATING ACTION OR SUBJECT MATTER.

TWO OR THREE SENTENCES DESCRIBING THE PART OF THE "STORY" ILLUSTRATED BY THE VISUAL.

OUTLINE SCRIPT

Basic Anatomy of the Heart and Circulation of Blood Through the Heart

Tape recording of human heartbeat.

1. Ask class to identify the sound
2. Introduce the topic

Medium Used tape recording

Frontal section

1. Explain section
2. Identify and label
   a. Chambers
      (1) Atria
      (2) Ventricles
   b. Valves
      (1) Between chambers
      (2) Between ventricles and arteries
3. Emphasize that "right" and "left" refer to the body, not to the diagram.

Medium Used Transparency

Top view - valves exposed

1. Explain view
2. Identify
   a. Valves between chambers
   b. Valves between ventricles and arteries
3. Explain that more specific anatomy and names will be learned later.

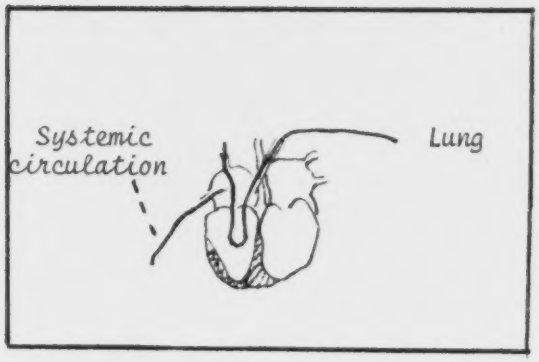
Lower part of previous Transparency revealed

Medium Used Transparency

Diagrammatic View of Heart

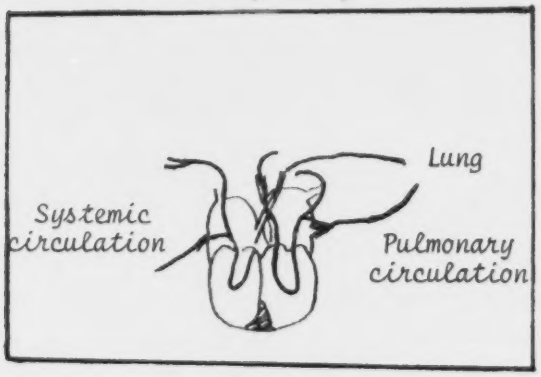
1. Explain view - how it is different from #2
2. Remind students that blood from body always enters atrium.
3. Introduce discussion on circulation of blood through the heart.

Medium Used Transparency



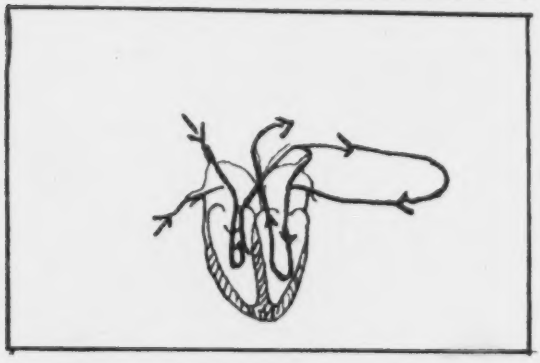
1. Deoxygenated blood is represented by blue color.
2. Systemic circulation: from the various body systems
3. Vein from head and arms, and vein from trunk and legs enter right atrium.
4. Blood passes from atrium, through valve, into right ventricle, through valve into artery to lungs.

Medium Used Transparency - 1st overlay



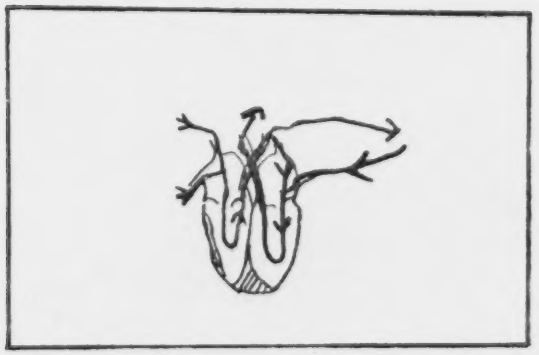
1. Oxygenated blood (represented by red) returns to left atrium.
2. Pulmonary circulation: between heart and lungs.
3. From left atrium, blood passes through valve into artery returning blood to head, arms, trunk, legs.

Medium Used Transparency - 2nd overlay



Show complete cycle by rotating polarized disk above transparency in time with heartbeat recording; "Techanimation" tape on overlays shows movement.

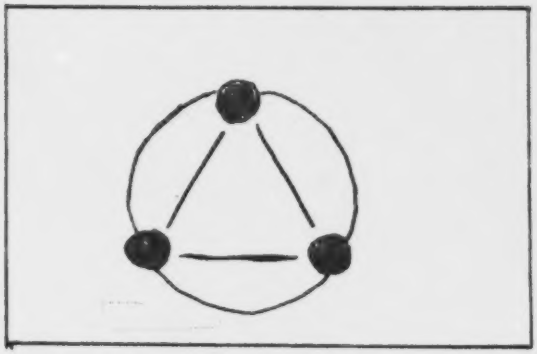
Medium Used ~~Transparency and tape recording~~



1. Pulsating movement of blood is due to pumping action of heart - alternating contraction and expansion of chambers.
2. Each "beat" includes two parts:
   a. First sound occurs when ventricles contract
   b. Second sound occurs when atria contract.
3. Sound of heartbeat is caused by closing of valves.

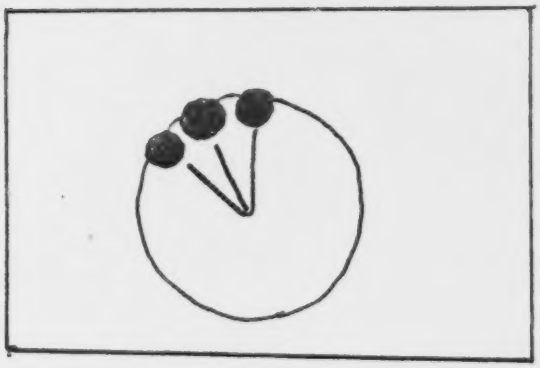
Medium Used Transparency

WORD-FOR-WORD SCRIPT



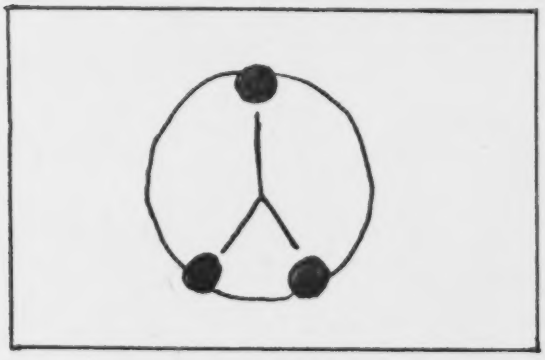
A triad color harmony is made up of colors that make equalateral triangles on the color chart. The example shows yellow, blue and red forming the triangle.

Medium Used opaque projector



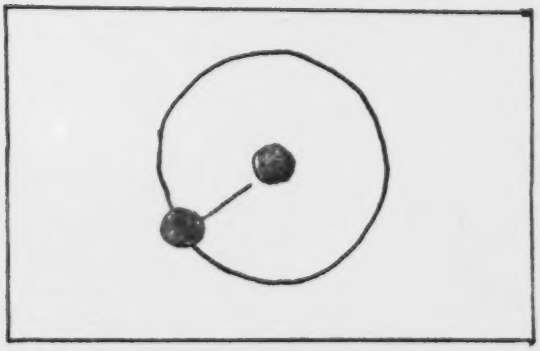
Analogous colors are related colors laying next to each other on the wheel. By related I mean that the colors in the analogous scheme have one color in common.

Medium Used opaque projector



Split Complement color harmony is made up of one color with the colors on each side of its complement, opposite color on the wheel.

Medium Used opaque projector



Another interesting color harmony is the accented neutral. This consists of a color accent used with a neutral of white, tan, gray or black.

Medium Used opaque projector

IV. STILL PHOTOGRAPHY

Pictures are essential factors in our way of life, and in teaching. People learn a great deal from what they see. To make use of still pictures, you must know something about the technical aspects of cameras and types of film as well as the esthetic aspects of photography.

Uses of Photography

_____

_____

_____

_____

_____

Types of Cameras

During class discussion list some of the advantages and uses of these cameras:

Cameras	Advantages and Uses
Polaroid	_____
Twin lens reflex	_____
Instamatics (804)	_____
Single lens reflex	_____

Instruction sheets for the use of some of these cameras follow on the next pages.

OPERATING INSTRUCTIONS

HONEYWELL PENTAX SPOTMATIC 35MM SINGLE-LENS REFLEX CAMERA

1

SET FILM SPEED.

Lift the outer ring of the shutter speed dial, turn it around and set the same number as the ASA number of the loaded film to the small red index which appears alongside the figure 1. Then cock the rapid wind lever.

2

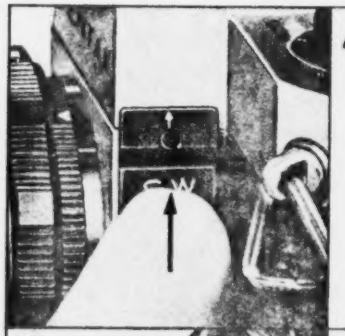
SET SHUTTER SPEED.

Turn the shutter speed dial and set the speed you wish to use to the index. When outdoors, set the speed at 1/125 sec. or faster, depending upon the lighting. When indoors, set it at 1/30, or in its neighborhood. Change the shutter speed later, when necessary. (Refer to item 5, page 19.)

3

COMPOSE AND FOCUS.

While viewing through the viewfinder, turn the distance scale ring with your thumb and index finger until you get the sharpest image of your subject at the microprism center of the finder.



4

TURN ON LIGHT METER SWITCH.

Push up the switch button with your thumb, and the small window on the switch button will turn to red indicating that the meter is switched on. Through the viewfinder, you will observe the movement of the meter's needle on the right side of the ground glass. Be sure to turn off the meter's switch when not actually taking readings.

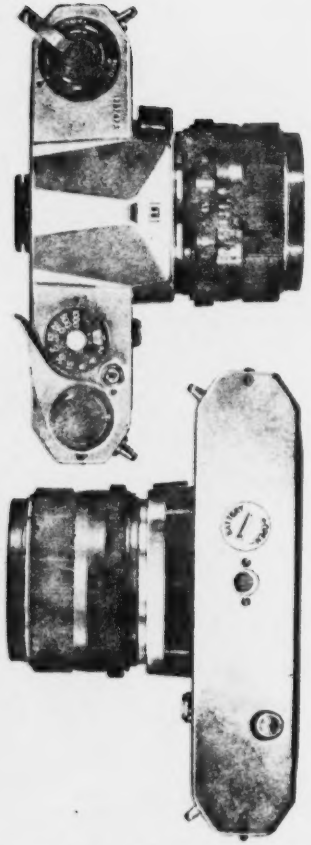
5 **ROTATE DIAPHRAGM RING.**

The needle moves up and down with the turn of the diaphragm ring. When the needle rests at the center, you will get correct exposure. If the needle does not come to the center no matter how far you turn the diaphragm ring, change the shutter speed. When the needle is off center and close to the (+) mark, you will get over-exposure: change the shutter speed to a faster setting. If the needle is closer to the (−) mark, you will get under-exposure: change the shutter speed to a slower setting.

6 **RELEASE SHUTTER.**

Hold your camera firmly and trip the shutter. When the shutter is released, the meter switch will automatically turn off, and the needle will remain fixed off and underneath the center. The diaphragm will reopen to its full aperture and the overall image will look brighter. Cock the rapid wind lever for the next picture. (When taking a series of pictures under the same lighting conditions, it is not necessary to repeat instructions 4 and 5.)

Film wind and rewind



1 Before turning the rapid wind lever, slowly turn the film rewind knob clockwise until a slight resistance is felt. This prevents loosening or warping of the film.

2 The first portions of the film cannot be used for picture taking as they have already been exposed to light. Generally, two blank exposures should be made before taking your first picture. Cock the rapid wind lever until it stops. Watch to see that the film rewind knob automatically turns counter-clockwise, indicating that the film is moving from cassette to take-up spool. Trip the shutter. Cock the rapid wind lever for the first picture; the exposure counter automatically turns to '1', indicating that the first picture is ready to be taken.

3 After the final picture on the roll (20 or 36 exposures) has been taken, the rapid wind lever will not turn all the way as you stroke it. This indicates that the final picture has been taken on your film, and that the film must be rewound. DON'T open the back of the camera, or *all* exposed frames will be ruined.

4 Unfold the film rewind crank.

5 Depress the film rewind release button. Turn the rewind crank to rewind the film into the film cassette. The film rewind crank permits rewinding at a smooth, even rate. (Under some atmospheric conditions, erratic or too rapid rewinding will cause static electricity marks on the film.) You will feel the tension on the rewind crank lessen as the leader end of the film slips off the take-up spool.

Stop rewinding when you feel this happen. AVOID DIRECT SUNLIGHT WHEN UNLOADING YOUR FILM. (The rewind release button will return to normal position as you load your next film and turn the rapid wind lever.)

6 Pull out the film rewind knob (the back will open automatically), and remove the film cassette.

Film loading

Avoid direct sunlight when loading your film.

1 Open the back by pulling out the rewind knob until back cover snaps open.

2 Place the film cassette into the cassette chamber, and push back the rewind knob. Draw out the film leader and crease across one or two perforations back from the end of the leader. Insert the creased portion into slot of the take-up spool.

3 Advance the film by alternately turning the wind lever and releasing the shutter until both sprockets have properly engaged the film perforations. Close the back by pressing it firmly.

4 If the film is properly loaded, the rewind knob will turn counter-clockwise when you advance the film by turning the rapid wind lever.

Flash synchronization

The Honeywell Pentax has two sets of terminals —FP and X. The table below shows which flash contact, which shutter speed and which flash bulb may be combined for maximum lamp efficiency. Unless these combinations are rigidly followed, there will be a failure in flash synchronization. Note the "X" setting is exactly at the 60 marked on the speed dial. This indicates the highest shutter speed at which Honeywell Strobonars or other electronic flash units may be used.

KODAK 804 INSTAMATIC CAMERA

To Take Pictures

1. Set the shutter speed. For general picturetaking, the shutter speed setting may be left at 125.

2. Focus the camera for the camera-to-subject distance by using the rangefinder, symbols, or the footage scale on the lens mount.

3. View the subject, with your eye close to the rear opening of the viewfinder so that the subject is framed by the luminous viewfinder. *If, as the shutter release is slightly depressed, the red warning signal appears in the right side of the viewframe, there is not sufficient light for proper exposure.* However, flash can be used for close subjects or a "B" exposure for a still subject.

4. Hold the camera steady and take the picture by slowly pressing the SHUTTER RELEASE all the way down.

5. With the spring motor wound, film advances automatically to the next frame when pressure is removed from the shutter release.

Summary of Operating Procedure

1. Load camera

2. Wind motor

3. Set shutter speed

4. Focus

   a. range finder

   b. scale

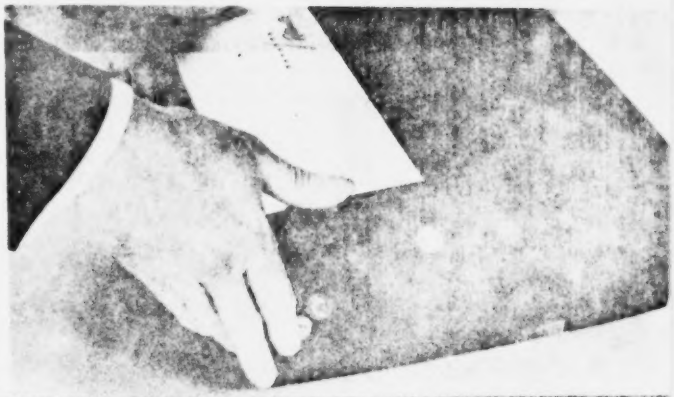
5. Compose picture and press shutter release

Film

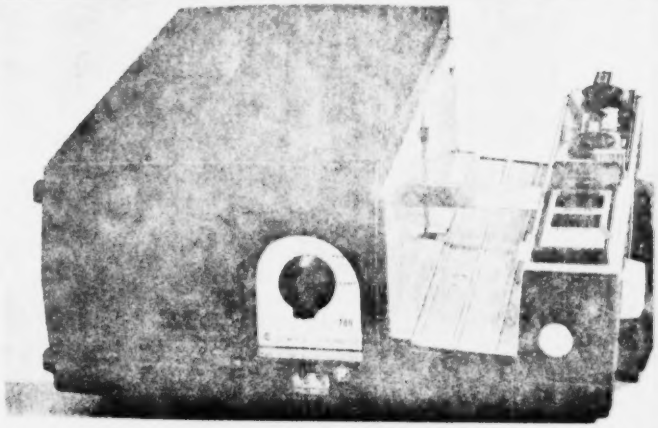
Your camera accepts all Kodak films in the 126 cartridge for instant camera loading and unloading.

You can make black and white snapshots, color snapshots, or color slides, depending on which film type is loaded in the camera.

GETTING YOUR "SHOW ON THE ROAD"...

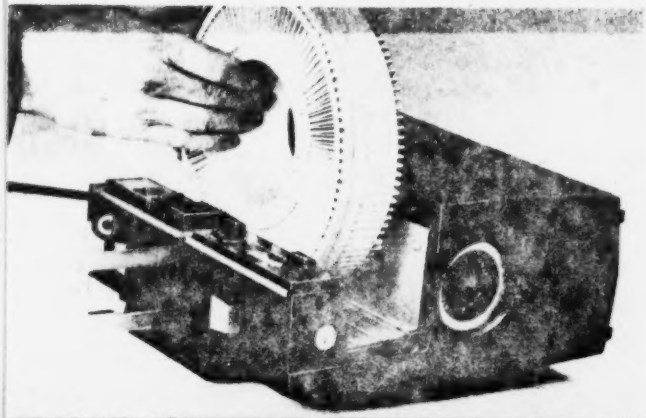


RELEASE CATCHES (C) are located on both ends of projector. A slight pressure on both simultaneously will release lock. Cover may now be lifted off. The POWER CORD and REMOTE CORD are conveniently stored in the pocket of the cover. The LENS SHIELD (L) automatically retracts as cover is removed. Do not attempt to open lens shield while projector cover (C) is closed. LENS SHIELD must be closed manually when cover is replaced.



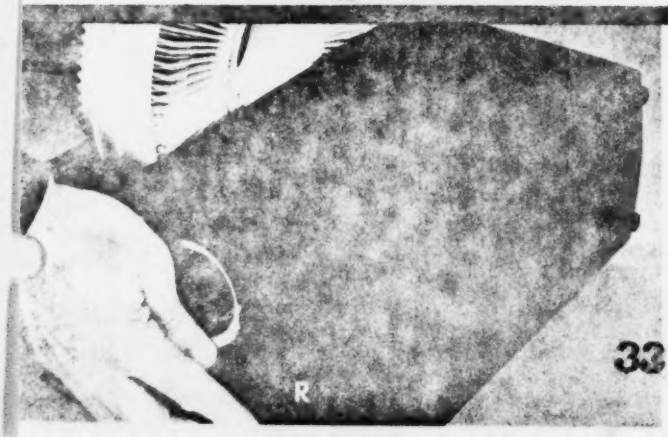
PLUG POWER CORD into SOCKET (P) located at rear of projector. Then plug other end of cord into any 105-125, 60 cycle AC electrical outlet. Blower and lamp are turned on by switch directly above power socket. Knob turns clockwise, turning on blower before lamp goes on. This assures a continuous flow of air over the projection lamp. A portion of this warmed air is diverted to the slide tray for "pre-heating" the slides. This minimizes slide "popping."

CAUTION. BE CERTAIN REAR VENT IS KEPT CLEAR TO PREVENT PROJECTION LAMP FROM OVERHEATING.



TO PLACE ROTOTRAY® SLIDE TRAY

To place ROTOTRAY Slide Tray in projector, fully extend the changer arm (C). Place ROTOTRAY Slide Tray in channel with open side of slots toward projector body and resting on the two nylon guides. Rotate tray until slide number 1 is lined up opposite changer arm. Push in changer arm and your first slide will be in projection position.



TO ELEVATE PROJECTOR

To elevate projector, grasp base of projector and raise to desired height. Pull up on release catch (R) . . . elevation leg will now drop to table surface. Let go of release catch and projector will stay in this position. Retract leg by pulling up on button and lifting elevation leg until flush with projector cabinet.

CONSOLE BECOMES REMOTE CONTROL

Removable operating CONTROL UNIT is located on projector CONSOLE.

FOCUS: Forward pressure on FOCUS BUTTON (F1) moves lens forward, reverse pressure retracts lens. Hold slight pressure as needed until picture becomes sharp. The lens can also be focused manually by FOCUS KNOB (F2).

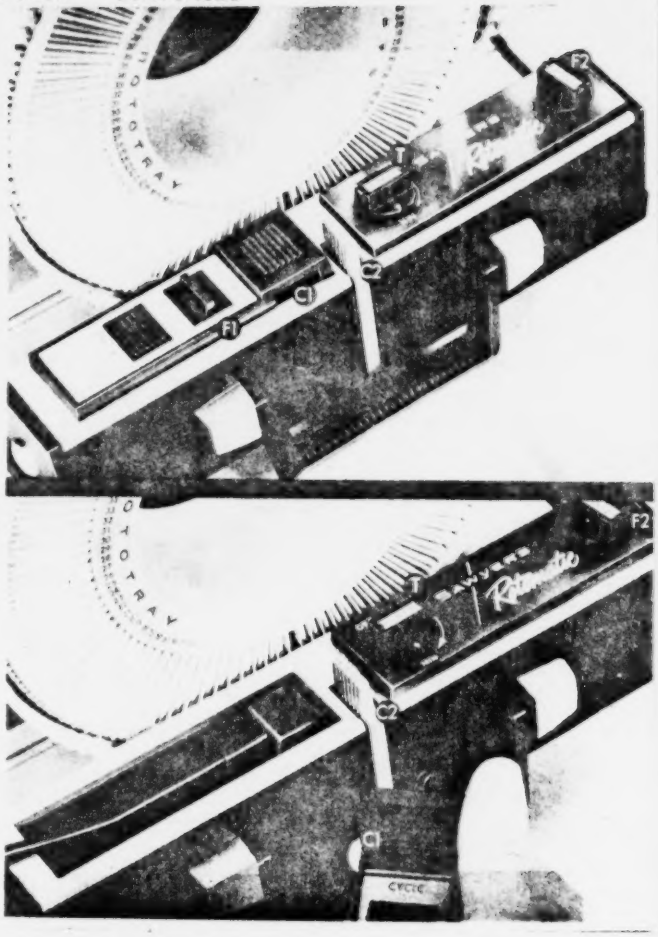
TO CHANGE SLIDES: Press CYCLE BUTTON (C1) on CONTROL UNIT and slides will change automatically. Slides can also be changed manually with CHANGER ARM (C2). Pulling changer arm until a positive "Click" is heard advances tray to next position. Pushing changer arm in, places slide in projection position.

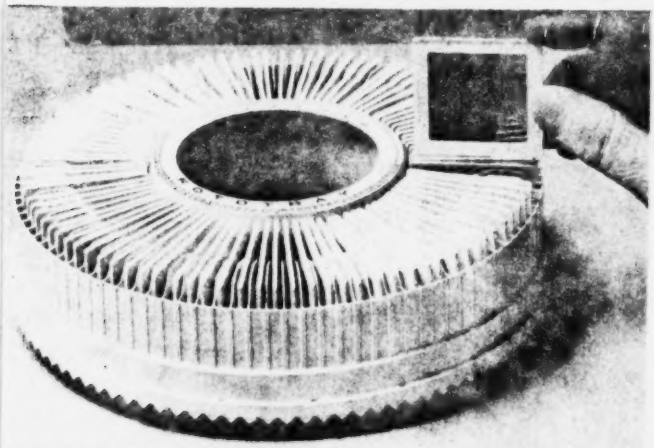
FORWARD-REVERSE: Tray direction can be reversed by touching "FWD-REV" Button on CONTROL UNIT.

HAND REMOTE: All of the above controls can be operated by remote control. Remove Control Unit by grasping on either side of CYCLE BUTTON (C1) and lifting upward. Remove remote cord and plug male end into receptacle on projector, female end of cord plugs onto CONTROL UNIT. The CONSOLE CONTROL is now a convenient HAND REMOTE with all major controls at your fingertips. If needed, REMOTE CONTROL EXTENSION CORDS are available.

ROTOMATIC "700" AUTO-TIMER: The ROTOMATIC "700" also features the fully automatic "AUTO-TIMER." Set TIMER DIAL (T) to any convenient projection interval approximately between a minimum of five seconds and a maximum of 30 seconds . . . the projector runs itself. You can "over-ride" the "AUTO-TIMER" and change slides at any time by pressing the CYCLE BUTTON (C1). With the time dial set on "off" slides are changed by pressing cycle button or manually with changer arm.

IMPORTANT: IF CHANGER ARM FAILS TO COMPLETE CYCLE FOR ANY REASON TURN OFF POWER SWITCH BEFORE ATTEMPTING TO MOVE CHANGER ARM MANUALLY.



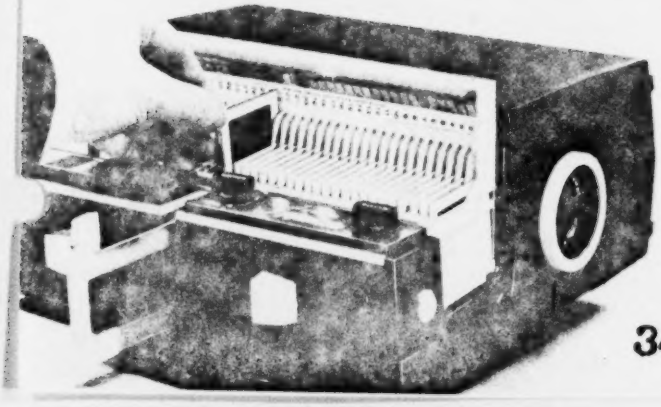


USE 100-SLIDE *Rototray*® SLIDE TRAY

SAWYER'S ROTOTRAY Slide Tray will accept paper mounted slides, SAWYER'S plastic mounted slides and other slides whose thickness does not exceed 5/64" (.078) maximum. The ROTOTRAY Slide Tray will hold 100 slides securely by a unique spring clip . . . no danger of spilling.

To load, place ROTOTRAY Slide Tray on table with open side of slots up and slot #1 to your right. Starting with slot #1, insert slide with top of picture toward the outside of the tray and with the emulsion (dull) side of film facing you. Proceed in this manner until all slides have been inserted in their slots.

Your ROTOTRAY Slide Tray comes in a handsome album for safe and convenient storage with an identification label and index card provided. The self-adhesive label can be affixed to the end of the album. Use the index card to record the subject matter of each slide for reference during your slide show.



36-SLIDE *Easy-Edit*® SLIDE TRAY

Your ROTOMATIC Slide Projector also includes the popular SAWYER'S EASY-EDIT 36-Slide Tray. With the EASY-EDIT Tray, slides can be edited, repositioned and changed back and forth while projector is operating. EASY-EDIT Slide Trays will accept any 2x2 slide mount . . . paper, glass, metal or plastic . . . mixed in any order. Tension springs prevent slides from falling out while handling tray.

To open EASY-EDIT Tray cover for loading, press simultaneously on round lock catch with thumb and tray cover near numbers with forefinger. Hinged cover will now swing open. Place tray so slot numbers read toward you. Insert slides with top of pictures toward bottom of tray and with emulsion (dull) side of film facing away from you.

In addition to SAWYER'S ROTOTRAY and EASY-EDIT Trays, your ROTOMATIC Projector will use any of the standard T.D.C.-type slide trays. There are many brands available and come in 30, 36 and 40-slide capacity.

Live vs. Copied Pictures

You may use a camera to take pictures of scenery, people, machines, or other subjects. We call these LIVE PICTURES.

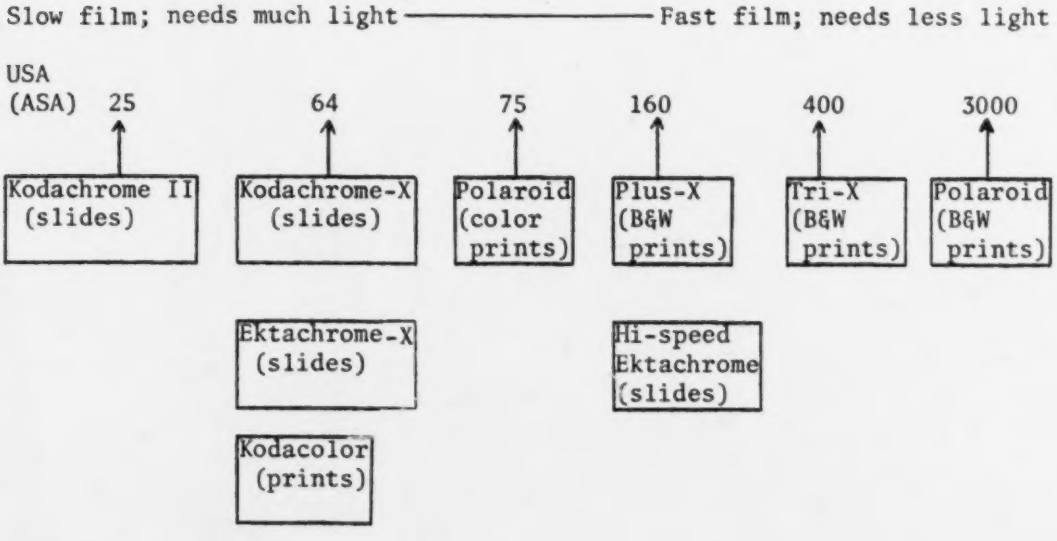
A second use of a camera may be to take photos or slides of magazine pictures, cartoons, or other printed material. We call these COPIED PICTURES.

For either type of picture the process of taking the photograph is much the same, and we discuss it in the next section.

How to Take Pictures

Choose the correct camera by using the list of camera types on the previous page. Choose the kind of camera that will produce the pictures you want.

Your choice of film depends on the final results you want. The chart below summarizes the kinds of film available.



"Fast" films need less light; "slow" films need more light. Films are rated with a USA (United Standard Association)* rating printed on the film box and also on the film cassette.

Almost all photographs must use what is known as visible light. Visible light may be sunlight, house lights, flash, or photofloods. For most purposes sunlight, direct, or indirect is assumed natural lighting. The main problem you face is taking interior photos. For dim lighting either photoflood lamps or flash bulbs will provide enough light for good photos.

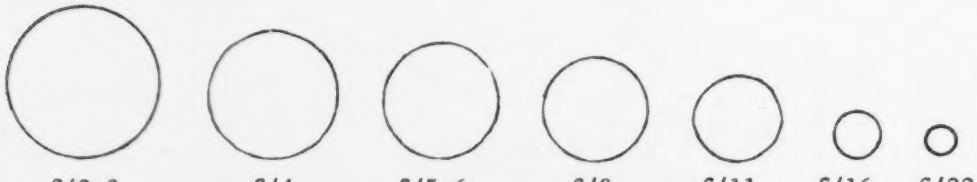
Focusing varies with each camera. Box cameras and the less expensive Instamatics are pre-set, and will take a sharp picture from 6 feet to infinity. Other cameras have super-imposed focusing, split-field focusing, or ground glass focusing. Focusing is a simple matter of visually seeing a "clear" image through the camera.

The important thing to remember is to use a single-lens reflex camera for extreme close-up photographs.

Correct exposure of film depends on the systematic control of the light passing through the lens to the film. The AMOUNT and DURATION of light controls film exposure.

a. Amount of light -- "f" stop

"f" stop is a means of designating the diameter of the opening through which the light passes for any lens.



RELATIVE SIZE OF THE VARIOUS APERTURES

*Formerly ASA (American Standard Association)

b. Duration of light -- shutter speed

Shutter controls regulate the time of light passing through the lens. Shutter speeds range from 1 second -- to -- 1/1000 of a second. For general scenes a speed of 1/60 or 1/125 is suggested.

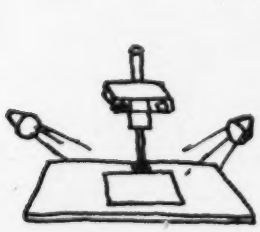
Photo Copying

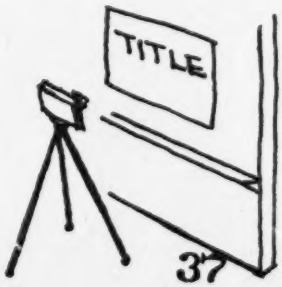
To make slides or prints (depends on film) from books, illustrations, folders or documents, you will need a single-lens reflex camera (Pentax). With a Macro lens or a close-up lens on the camera you can photograph items as small as postage stamps.

Several methods of holding a camera are illustrated below. The principles for each are the same. Mount your copy flat, aim the camera squarely at the copy, focus and adjust your camera carefully and shoot. Lighting in all cases should be at a 45° angle to the copy to avoid reflection in the lens.

Title slides - and ending slides - can be made by photographing the appropriate words typed on colored paper, or on a white 3 x 5 card. These make a slide set look more professional, and more finished.

"Blank" slides - 2" x 2" pieces of cardboard - should be used at the beginning, just before a title slide, and at the end, just after an ending slide. With blanks, you can prevent the screen from "going white" - which is disturbing and distracting to the audience.





The Photo Essay

As the name implies, this is a picture story. It usually has descriptions to accompany the pictures, either written out or on a tape recording. But the pictures should carry the main message. It should not take 1000 words to explain each picture.

Steps in Planning a Photo Essay

The scripting process is used in planning a photo essay. You may want to refer to the model on page 20 and to the discussion of scripting.

1. Select the topic. It should be a process or situation that doesn't require motion for understanding. Steps in a manufacturing process, stages in the construction of a building, data, figures, scenery -- all can be subjects of a photo essay.
2. Determine the objectives. What should the person be able to do after seeing the photo essay? Write the objectives in behavioral form, emphasizing the expected behavior of the person studying the photo essay.
3. Write the script. Develop the written part of the essay, keeping in mind the kind of pictures you will need. Will you need to take live pictures or can you find many of the illustrations in books, magazines, or other pre-printed material?

4. Produce the essay.

   a. Take the pictures

   b. Make the poster, booklet, or display to hold the pictures

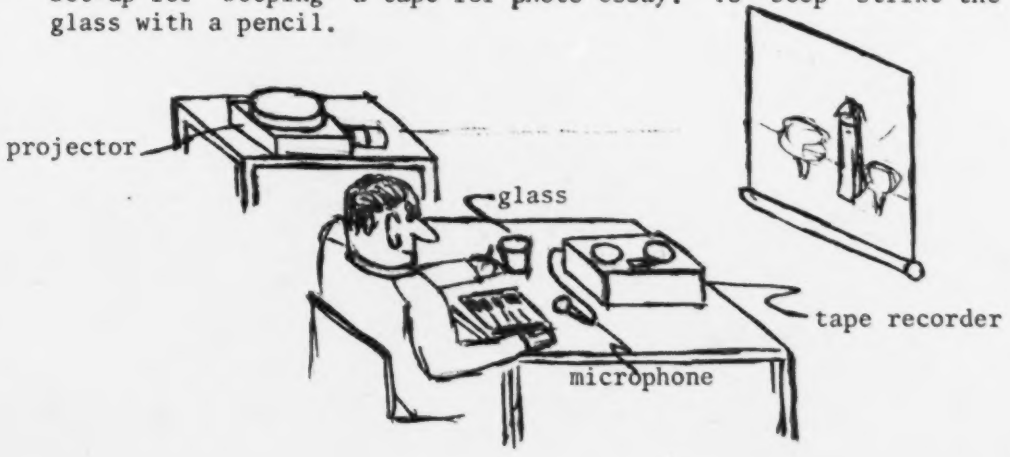
   c. Add the message

As we mentioned, the message can either be written or tape-recorded. Lettering should be neatly done, with a typewriter, dry-transfer letters, LeRoy lettering, or freehand.

Tape Recordings and Photo Essays

Frequently it is more effective to have audio tapes carrying the message instead of written words. Actual sounds of machines or people can accompany their pictures. Cassette tape recorders or reel-to-reel recorders can be used. The tape may carry a "beep" to signal the operator of the projector when to change the slide.

Set-up for "beeping" a tape for photo essay. To "beep" strike the glass with a pencil.



V. MOTION PHOTOGRAPHY AND VIDEO TAPING

Films and video tapes can show motion -- speeding up slow events and slowing down fast ones. If motion is necessary to understanding the topic you are teaching, these media should be used. In the space below list some of the other reasons for using motion in teaching.

_____

_____

_____

_____

_____

Types of Motion Pictures

The 16mm sound films have been the standard "classroom films" for several decades. The other type of motion picture is the 8mm silent film which is called a filmloop or single-concept film.

Comparison of 16mm and 8mm Films

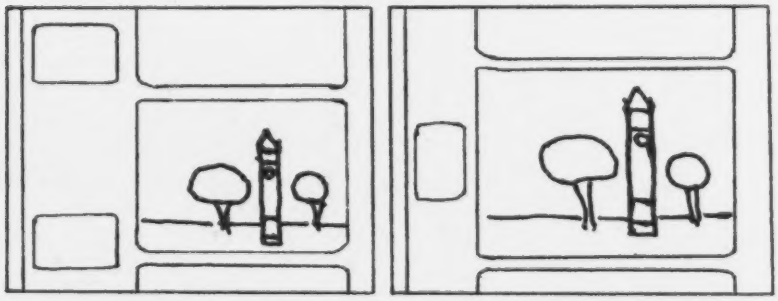
16mm Sound Films	Film Loops
sound	silent
long (10 min. - 45 min.)	short (1 min. - 4 min.)
may contain many concepts	contain only one concept
tend to be general	tend to be specific
not adaptable to stop-and-go teaching	can be used in stop-and-go teaching

Movie Cameras

Unlike still cameras, which are suited to a variety of purposes, movie cameras are much more similar to each other. The Instructional Resources Center has a number of Super 8 cameras for your use.

The cameras are battery operated so no winding of a spring motor is necessary. The batteries also operate the light meter, which senses the light and automatically sets the opening of the lens. The film runs through the camera at a constant speed, so there is no setting for shutter speed.

What is Super 8?



Regular 8mm film format Super 8mm film format

A New Kind of Movie Film

Bigger on the film, better on the screen. New Super 8 Kodachrome II movie film is a single-width 8mm film with 50% more picture area than regular 8mm film. It is an improved film with finer grain. This means brighter, sharper movies. The magnetic sound stripe now goes on the side opposite the sprocket holes for better sound quality.

A new kind of movie film cartridge brings drop-in loading sales appeal to movies! Just put it into the camera -- the camera's loaded. ASA film speed is set automatically. Begin shooting instantly. Continue for a full 50 feet with no stopping to reverse or flip the film.

Terms Used in Motion Photography

ACCELERATED MOTION: Faster-than-normal motion of the subject, which results when projection speed exceeds shooting speed.

ANIMATION: The filming of static drawings or objects by means of stop motion to give the illusion of movement.

CONTINUITY TITLE: A title used between sequences to identify or explain the next scene.

CREDITS: The titles at the beginning or end of a film listing the names of those who made or acted in the production.

CUTAWAY: A shot used to introduce variety to a given scene by showing a simultaneous action.

DISSOLVE: An optical effect in which one image gradually disappears as it is replaced by another.

DOCUMENTARY: A film of fact as distinguished from fiction; it uses actual or restaged material from real life.

FADE-IN: Beginning of a shot starting in darkness and gradually lightening to normal image brightness.

FADE-OUT: Opposite of fade-in.

FILM GATE: The part of a camera or projector that presses the film on the open frame of the film mask.

FILM SPEED: (1) The number of frames that pass through a camera or projector film gate per second (e.g., 18 fps). (2) The degree of sensitivity of a given emulsion (as ASA 40).

FOCAL LENGTH: Distance from the optical center of a lens to the film plane when former is focused at infinity.

FRAME: (1) An exposed segment of movie film. (2) The image area in the viewfinder or on the screen.

XLS
Extreme long shot

FS
Full shot

MS
Medium shot

MCU
Medium close-up

CU
Close-up

XCU
Extreme close-up

MONTAGE: (1) Two or more images seen simultaneously on the screen. (2) Rapid intercutting of related images.

OPTICAL SOUND: Sound recorded on film by varying the density or area of a black-and-white track.

PANNING: Rotating the camera horizontally or vertically from a fixed position.

PARALLEL ACTION: Two or more actions, actually taking place in different locations, which are juxtaposed by editing.

SCENE: Section of a film in which location and time remain unchanged.

SEQUENCE: A group of scenes unified by time, place, or action.

SHOT: A filmed scene.

SPLICER: Device for joining separate pieces of film.

STOP MOTION: Technique of exposing film one frame at a time.

STORYBOARD: Group of sketches of the principal scenes of a production.

SYNC: Synchronism of picture and sound.

TAKE: A shot.

TREATMENT: A film's content, briefly written in literary form.

ZOOM LENS: A lens whose focal length can be varied, thus changing the magnification of the image.

Steps in Film Production

1. Script the film. Using the guidelines we have discussed for scripting, develop the topic, objectives, and story line for the film you want to make.

   Indicate in the script whether the picture should be a close-up, long shot, a zoom, or a pan. Also, you should indicate how long the scenes should run, although they can be shortened in the editing stages.

2. "Shoot" the film.

   a. Mount camera on a tripod.

   b. Focus.

   c. "Frame" the picture, using the zoom lens to make pictures larger or smaller.

   d. Use light if necessary. Watch the needle for the automatic light meter.

   e. Shoot the scene. You may want to get more than one shot of the same scene so that you can have some versatility in editing the film.

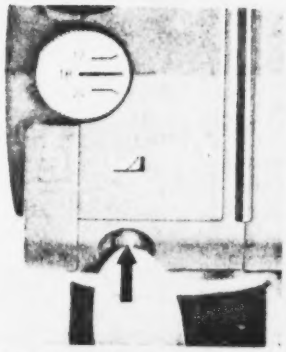
3. Edit the film. You may need to take some of the scenes out of sequence. These can be rearranged and spliced together again when you edit the finished film. Use a film viewer (sometimes called an "editor") and splicer to do this.

4. Add sound (optional). An audio tape may be made if you wish, to provide sound to accompany the film. During the 4 minutes that a single-concept film runs the taped narration will stay synchronized fairly well.

OPERATING INSTRUCTIONS

MINOLTA SUPER 8 MOVIE CAMERA

BEFORE USING YOUR MINOLTA AUTOPAK-8 K5

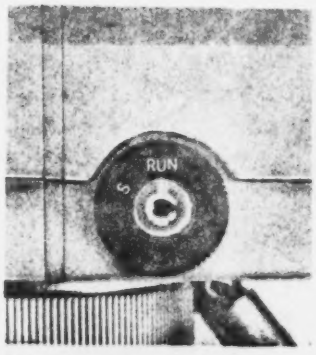


1. Check Battery Condition

Push the red battery check button firmly. The needle in the battery check window will move into the white area if the batteries are working satisfactorily.

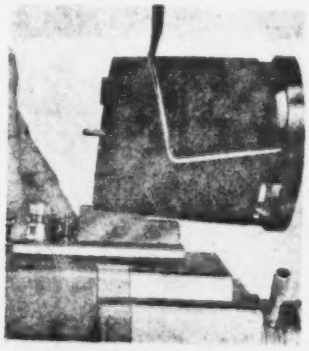
2. Check Exposure Meter

Sight through the finder, point the camera toward a bright light and move your hand back and forth across the lens. If the meter is registering, the needle at the top of the viewfinder will swing right or left across the scale.



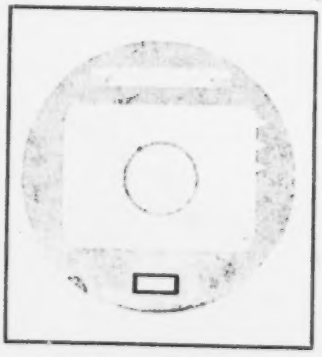
3. Set the Motor

Turn the single frame control to "RUN" and press the shutter release. A constant, low hum will indicate proper motor operation.



4. Using the Built-In Type A Filter

The Type A filter built into your Minolta Autopak-8 K5 permits use of indoor (Type A) film in daylight.
When using Type A film in daylight, you simply load the cartridge. Type A filter is always set in the camera.
If using Type A film indoors, simply set the movie light into its socket of the camera, thus automatically removing the Type A filter.
When using daylight or black/white film, Type A filter is automatically removed by loading the cartridge.
For detail see page 20.



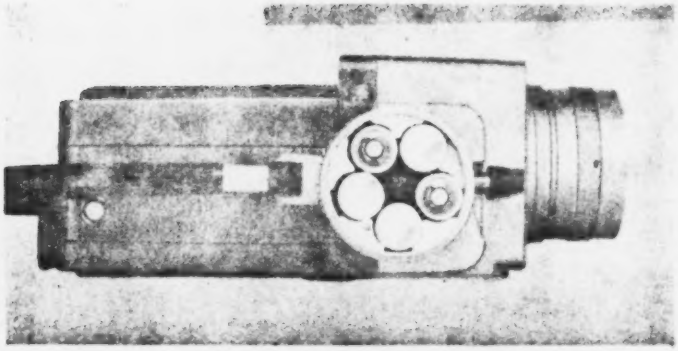
5. After Loading the Camera

A rectangular white "window" will be visible at the bottom of the viewfinder. Do not film until you can see this "window."

OPERATING INSTRUCTIONS (CONTINUED)

MINOLTA SUPER 8 MOVIE CAMERA

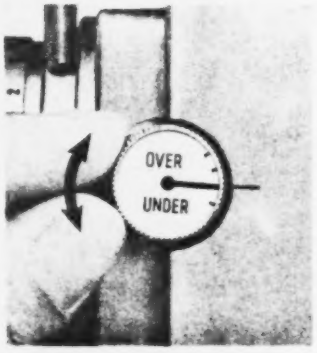
A QUICK GUIDE TO FILMING



1. Install Batteries

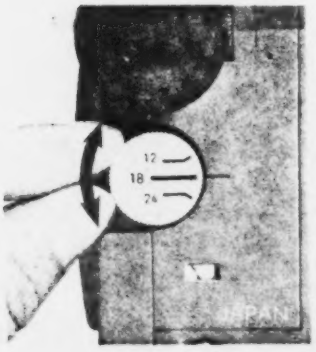
Unscrew the bottom of the hand grip and insert five penlight AA-size batteries carefully following the + or − indicators. Check the batteries.

Insert the Film Unlock the film chamber door and insert the film at a slight angle (front edge first), pressing down gently until you hear a click. This automatically sets the correct ASA rating. When the film is properly seated, a rectangular white "window" will appear in the finder. You will also be able to see the film cartridge through the window in the chamber door.



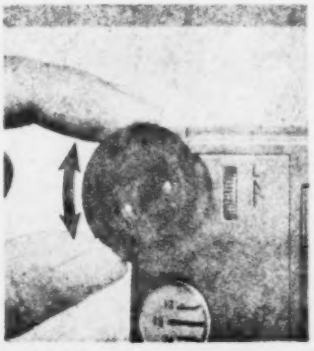
2. Automatic Exposure Control

Set the exposure control so that the two red lines are aligned.



3. Set the Frame Speed

For normal filming, turn the frame speed dial to "18" (frames per second). Details are on page 21.



4. Focus the Eyepiece

Loosen the eyepiece lock and turn the eyepiece until the image is as clear as you can get it (not necessarily sharp). Then lock the eyepiece and focus the lens by setting it at 30 mm and turning the focusing ring until the image in the finder is sharp.

5. Frame the Subject

Zoom "in" or "out" until the subject and background appear exactly as desired. You can also, of course, film while zooming.

EDUCATIONAL TELEVISION

Television is becoming increasingly popular as a teaching device. While it cannot solve all of the instructional problems--(no one machine can do that)--it can accomplish some tasks well.

Some Definitions

Closed-circuit television---a system in which the signal goes through a wire rather than out over the air

VTR----------video tape recorder; records both pictures and sound, which then can be played back on a monitor

Monitor----------a television receiver

Camera----------a television camera must be used to pick up pictures which then can either be recorded with a VTR or used live

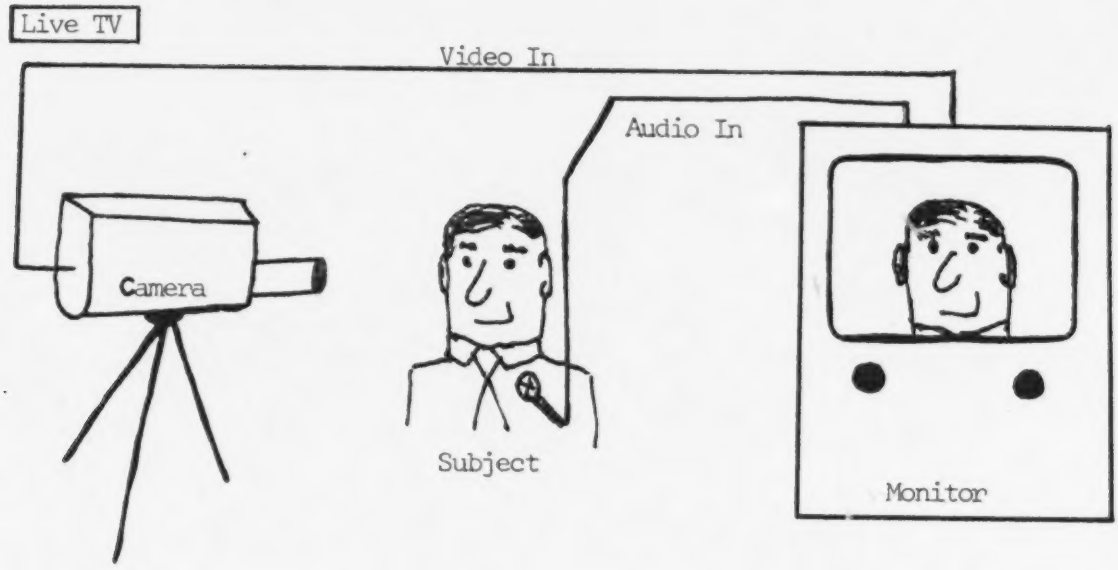
Live television----------use of picture and sound immediately instead of recording them for later playback

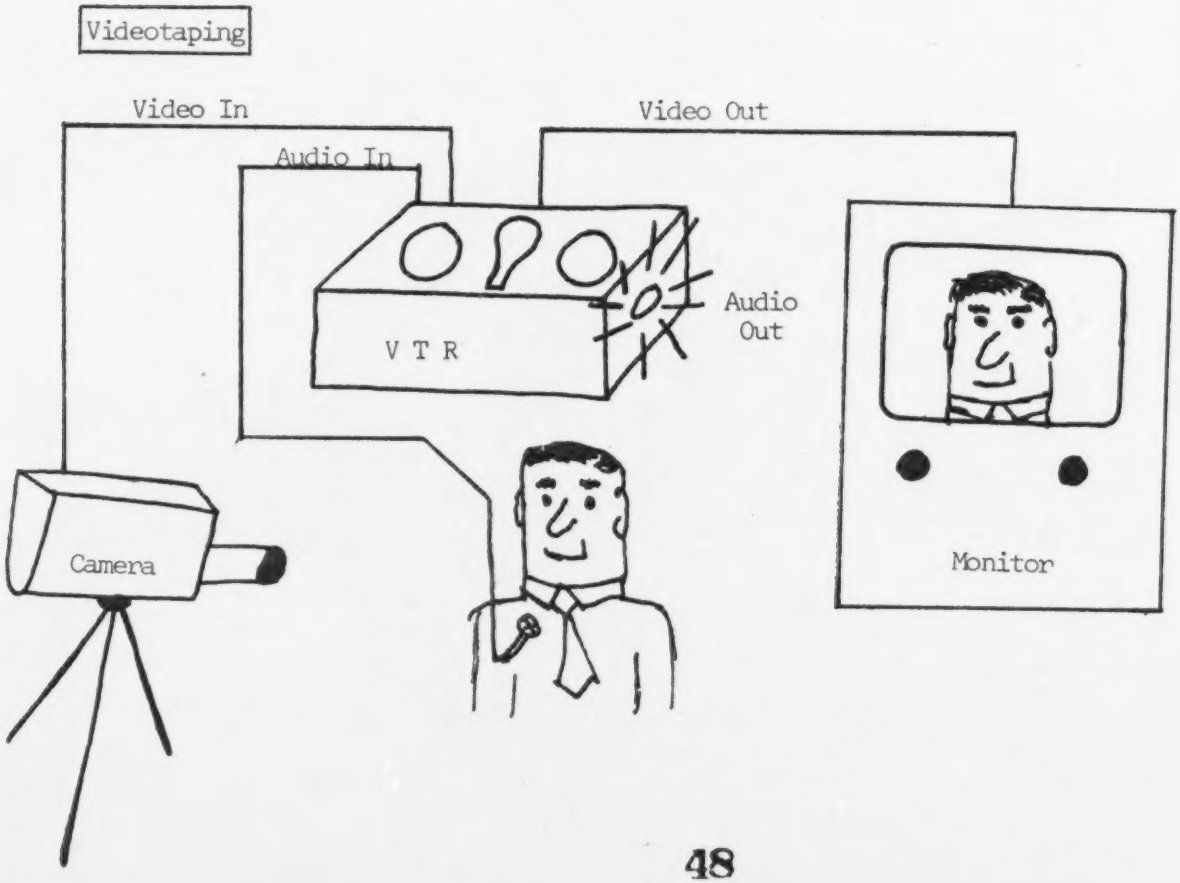
Video----------visual picture

Audio----------sound

Uses of Television in Teaching

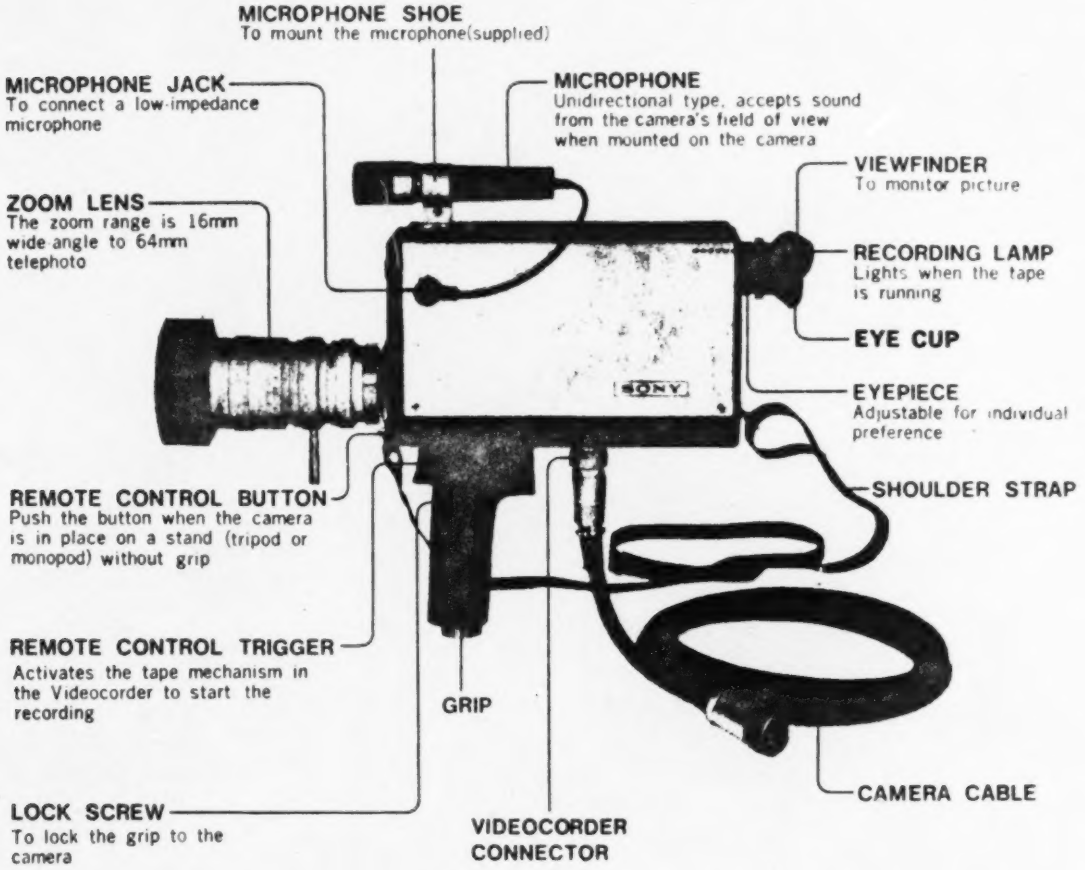
Closed Circuit Television Systems

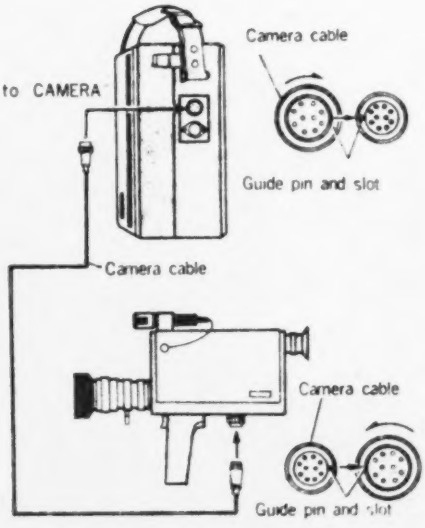




SONY® VIDEO CAMERA

LOCATION OF PARTS AND CONTROLS


MICROPHONE SHOE
To mount the microphone(supplied)
MICROPHONE JACK
To connect a low-impedance microphone
MICROPHONE
Unidirectional type, accepts sound from the camera's field of view when mounted on the camera
VIEWFINDER
To monitor picture
ZOOM LENS
The zoom range is 16mm wide-angle to 64mm telephoto
RECORDING LAMP
Lights when the tape is running
EYE CUP
EYEPIECE
Adjustable for individual preference
SHOULDER STRAP
REMOTE CONTROL BUTTON
Push the button when the camera is in place on a stand (tripod or monopod) without grip
REMOTE CONTROL TRIGGER
Activates the tape mechanism in the Videocorder to start the recording
GRIP
CAMERA CABLE
LOCK SCREW
To lock the grip to the camera
VIDEOCORDER CONNECTOR



Camera cable

Insert the 10-hole connector of the camera cable into the VIDEOCORDER CONNECTOR. Mate the guide pin of the cable connector to the slot of the receptacle and turn the locking collar of the connector counterclockwise until the cable is firmly locked into place.

Connect the other end of the cable (10-pin) to the Videocorder DV-2400 in the same way.

Camera cable can be extended up to 33 ft with the use of optional camera extension cables.

SONY CAMERA

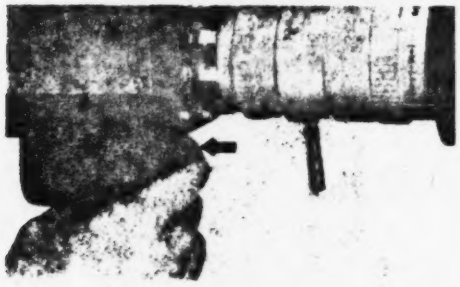
OPERATION AND ADJUSTMENTS

Recording Procedure

1. Set the FUNCTION LEVER of the Videocorder to the STANDBY position. This turns on the Videocorder and the camera.
2. Remove the lens cap and point the camera at the subject. Adjust the LENS OPENING RING and FOCUS RING while watching the Viewfinder. Pictures will appear on the Viewfinder approx. 20 seconds after turning on the camera.
3. Obtain a clear, sharp picture on the Viewfinder, then start recording by pressing the START BUTTON on the Videocorder. The RECORDING LAMP will light showing that the tape is running. Monitor sound from the microphone by plugging the earphone into the jack marked "EAR" on the Videocorder.
   To record pictures without sound, disconnect the microphone.

Remoto Control Trigger and Button

Tape motion can be controlled at the camera by pressing the REMOTE CONTROL TRIGGER on the camera grip, when the FUNCTION LEVER on the Videocorder is in the STANDBY position.
Press the trigger to start tape motion.
When you use the camera on the monopod or the tripod (optional), press the REMOTE CONTROL BUTTON located at the side of the LENS MOUNT.



Lens Opening Ring

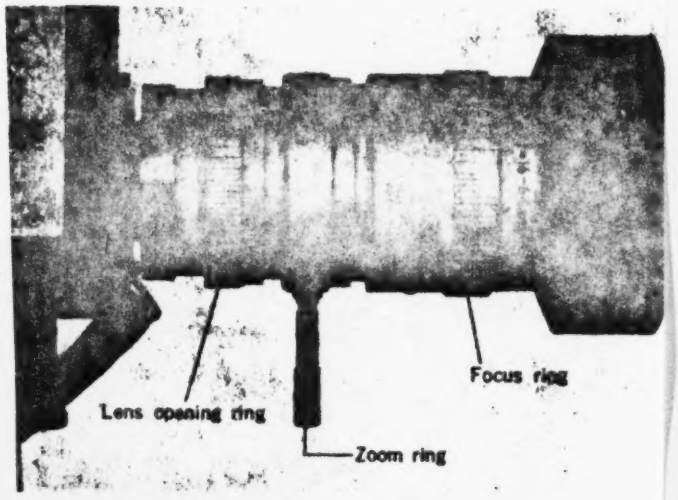
The Automatic Electric Sensitivity Control System of this Video Camera permits operation over a wide range of lighting conditions, from indoor lighting (300 lux) to outdoor daylight (100,000 lux).
In most cases the lens should be wide open (F 2). However, by setting the optimum lens opening to suit lighting conditions, best picture quality will be assured.
A simple guide for lens opening is as follows:
For indoor shots: (normal artificial illumination) set the LENS OPENING RING to F 2
For outdoor shots: (cloudy or shade) set to 4~5.6
(bright scene) set to 8~11
Further precise adjustments should be performed by watching the Viewfinder screen. The use of a smaller lens opening (higher F number) is also helpful in prologing the life of the vidicon tube.

Focus Ring

Estimate the distance from the lens to the subject, turn the FOCUS RING and set the distance (feet) to the black line on the lens tube.
Precise focus adjustments should be performed as you watch the Viewfinder screen.

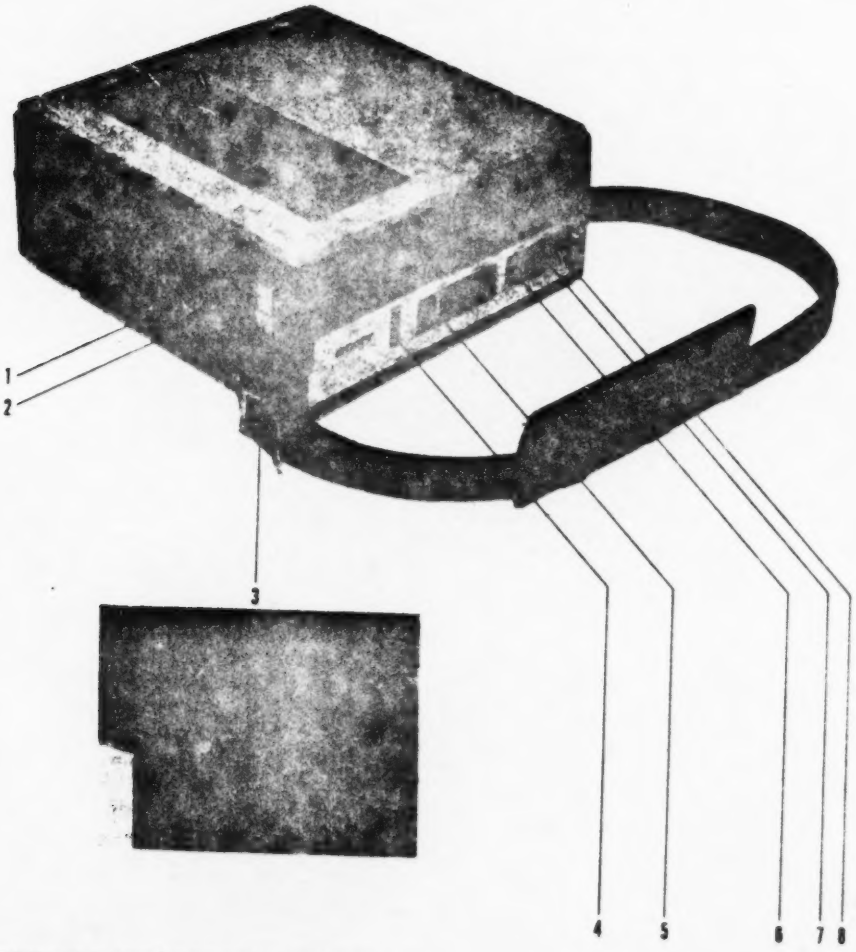
Zoom Ring

The zoom lens puts professional results into your productions. It moves the subject closer or further away on the screen, as you desire. Set your stage for a wide-angle shot, then close up on the point of interest. The lens travels its full range from 16mm wide-angle to 64 mm telephoto with smooth manual action.



SONY PORTABLE VIDEOCORDER

LOCATION OF PARTS AND CONTROLS



PORTABLE VIDEOCORDER DV-2400

1. EXTERNAL POWER CONNECTOR
To connect the optional AC Power Adaptor, Model AC-2400. The Videocorder can be operated directly from the household power line when the AC-2400 has been connected.

2. CAMERA CONNECTOR
To connect the SONY Video Camera DVC-2400.

3. COVER LOCK
Open the lock as illustrated.

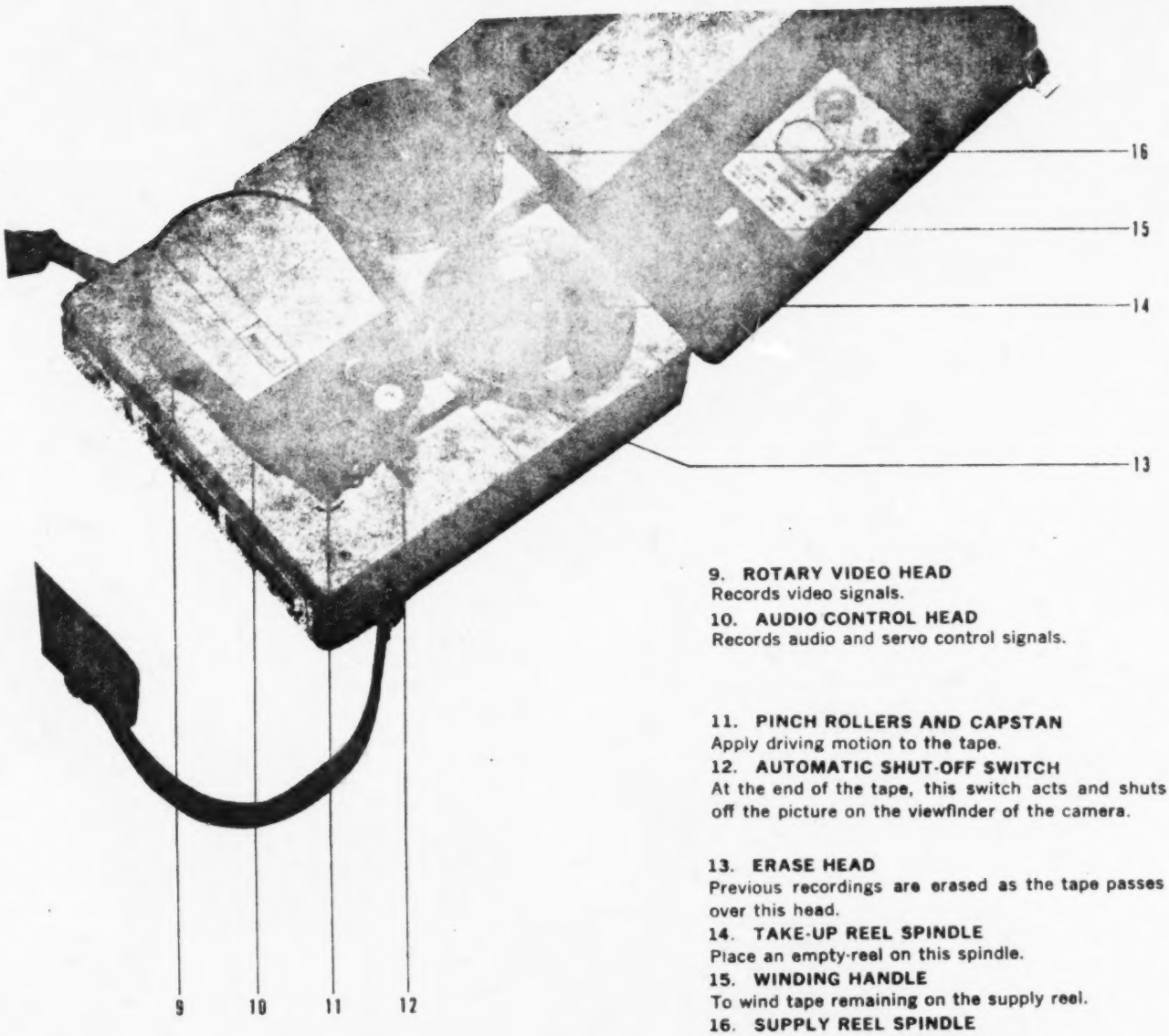
4. BATTERY INDICATOR
The pointer shows battery condition when the Videocorder is operating (Function Lever in the STANDBY position).
white zone reading....shows good battery condition.
Red zone reading .....shows that batteries need to be recharged.

5. FUNCTION LEVER
STANDBY position....To turn on the Videocorder and the camera connected to the Videocorder.
STOP position .....To turn off the Videocorder and the camera.

6. START BUTTON
To start recording, push the button.

7. MICROPHONE JACK
To connect a low impedance microphone.

8. EARPHONE JACK
To monitor the audio signal (sound) during the recording operation, connect the earphone (supplied) to this jack.



9. ROTARY VIDEO HEAD
Records video signals.

10. AUDIO CONTROL HEAD
Records audio and servo control signals.

11. PINCH ROLLERS AND CAPSTAN
Apply driving motion to the tape.

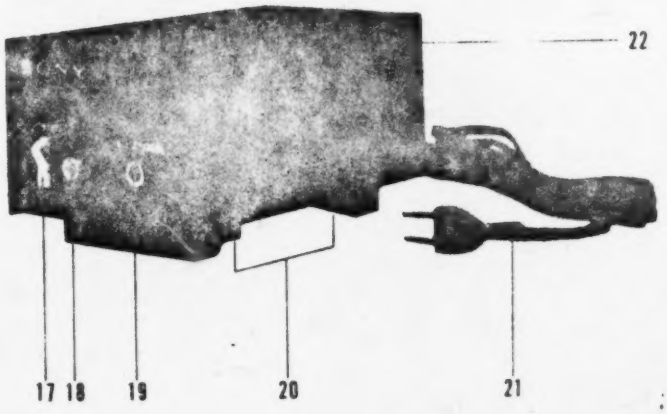
12. AUTOMATIC SHUT-OFF SWITCH
At the end of the tape, this switch acts and shuts off the picture on the viewfinder of the camera.

13. ERASE HEAD
Previous recordings are erased as the tape passes over this head.

14. TAKE-UP REEL SPINDLE
Place an empty-reel on this spindle.

15. WINDING HANDLE
To wind tape remaining on the supply reel.

16. SUPPLY REEL SPINDLE
Place a full reel on this spindle.



BATTERY CHARGER BC-2400

17. POWER ON OFF SWITCH
To turn on the charger, press the upper portion of the switch.

18. POWER LAMP
Lights when the charger is turned on.

19. CHARGING METER
The pointer shows charging condition.
While charging is proceeding, the pointer stays in black zone. When the batteries are recovered, the pointer goes back in red zone.

20. CHARGING CONNECTORS
Contact with the terminals of the batteries.

21. AC POWER CORD
Insert to an AC outlet (117V, 60Hz).

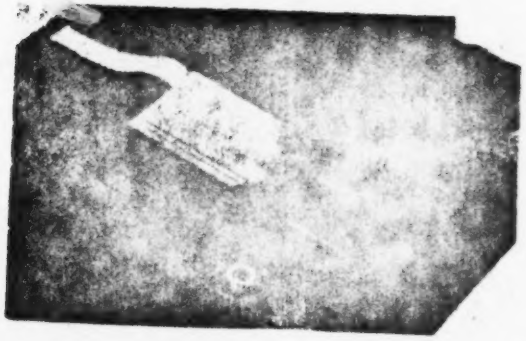
22. FUSE
Protects the charger from overloard.

POWER SOURCE

This portable Videocorder operates from rechargeable batteries. Batteries are normally recharged from the Battery Charger BC-2400, which is supplied as a standard equipment with the DVK-2400 system. An alternative source of power is the optional AC Power Adaptor, Model AC-2400, which permits AC operation and battery charging (batteries are charged while they are inside the Videocorder, refer to page 11.)

Battery installation

1. Open the battery compartment cover by pulling the catch of the cover.
2. Insert the batteries (supplied), Centralab RP-626 or equivalent. Be sure to match the polarity of the batteries to the connectors of the battery compartment as illustrated on the inside of the compartment door.



The printed sides of the batteries should face the inside the battery compartment.

3. Close the compartment cover by pushing the catch.

CAUTION

Improper installation of batteries may cause the battery shorting and may strongly damage the batteries.

Battery Life

Fully-charged batteries allow approximately one hour of continuous operation of the Videocorder and the camera. The batteries can be recharged approximately 100 times with the Battery Charger BC-2400 (supplied) or the optional AC Power Adaptor, AC-2400 (see page 11).

The pointer of the Battery Indicator shows battery condition when the Videocorder is turned on; the white-zone reading shows that the batteries are in good condition; a red-zone reading shows that the batteries have become discharged. Recharge them as directed in the following section.

Good battery condition

NOTE:

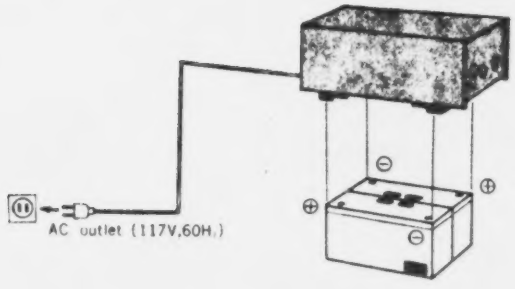
The Videocorder and camera will not perform properly with weak batteries. In addition, continuous operation with discharged batteries will decrease the capacity of the batteries. If the pointer of the Battery Indicator is in the red-zone, recharge the batteries at once.

When the Videocorder is in the "STANDBY" condition, the batteries are drained at the same rate as when recordings are in progress.

The batteries are fully charged when they leave the factory. However, idle batteries will discharge slowly over a long period of time. In that case, the batteries may not yield a full one-hour recording time when they are first put into service. Full capacity will be restored, however, after the first recharge.

Recharging... with the charger BC-2400 (supplied)

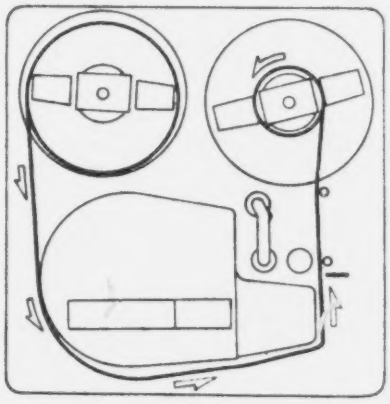
1. Take the batteries out of the Videocorder by pulling the ribbon inside the compartment.
2. Put the charger on the batteries so that the printed sides of both batteries face outside and the terminals of the batteries contact those of the charger.
3. Connect the AC power cord of the charger to an AC outlet (117V, 60Hz).
4. Press the upper portion of the Power ON-OFF Switch on the charger. The red Power Lamp will light, showing that the charger is operating. Recharge the batteries for about 10 hours. While the batteries are charging, the pointer on the Charging Meter will remain in the black zone. When the batteries recover for use, the pointer will swing back into the red zone. At the FULL position, the batteries will allow approx. one hour of continuous operation of the Videocorder and the camera.
5. After the batteries have been charged, remove the Battery Charger and reinsert the batteries into the Videocorder. Remember to put the ribbon into place first, so that the batteries can be removed easily next time.



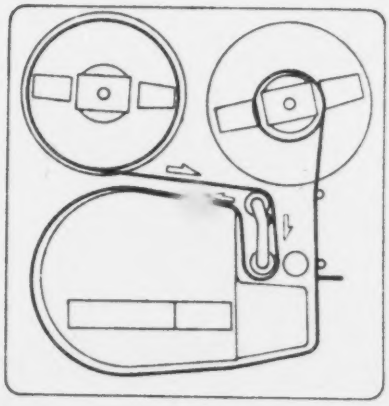
TAPE THREADING

1. Place a full reel on the Supply Reel Spindle and an empty reel on the Take-up Reel Spindle. Be sure that the slot of the reel engages the guide pin of the reel holder.
2. Unwind about 2 feet of tape and thread it to the Take-up Reel by passing around the outer tape path, inside the automatic shut-off switch and between the Pinch Roller and the Capstan as shown. (Picture 1)
3. Wind the tape around the Take-up Reel three or four times.
4. Turn the Supply Reel counterclockwise to make some slack in the tape.
5. Form a loop in the slack tape and drop it into the tape path around the tape guide, the Pinch Rollers and the Erase Head as shown. (Picture 2)
6. Turn the Take-up reel by hand to take up any excess slack in the tape path.

Picture 1

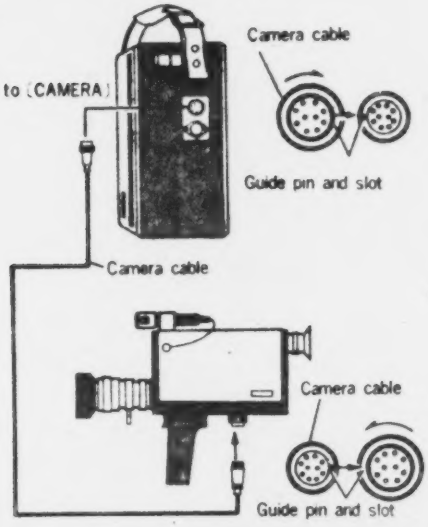


Picture 2



RECORDING

1. Connect the Video Camera to the Videocorder using the camera cable supplied with the camera. Plug the 10-pin end into the Camera Connector of the Videocorder by matching the slot of the plug with the guide pin of the receptacle. Turn the locking collar of the cable clockwise until the cable locks firmly into place.
   Plug the other end of the cable (female) into the Videocorder Connector on the camera by matching the guide pin of the cable with the slot of the connector on the camera. Turn the locking collar on the camera counterclockwise until the cable locks firmly into place.



2. Set the Function Lever to the STANDBY position. This turns on the Videocorder and the camera.
3. Remove the lens cap and point the camera at the subject. Observe the picture in the camera's viewfinder.
4. Adjust the camera to obtain a satisfactory picture as displayed on the viewfinder. To start the recording, depress the red Start Button on the control panel of the Videocorder, or pull the trigger on the hand grip of the camera.
   Sound picked up by the camera-mounted microphone will be recorded simultaneously. To monitor the sound, plug the earphone (supplied) into the Earphone Jack on the control panel of the Videocorder. Pictures and sound levels are set automatically in the DVC-2400 Video Camera and the DV-2400 Videocorder. The operator need concern himself only with optical focus and camera pointing.

   The Microphone plug on the DV-2400 Videocorder also accepts a low impedance microphone. When you connect this jack, the sound signal picked up at the camera-mounted microphone is disabled automatically.

   Note: The Microphone Jack and the Earphone Jack are the same in form and different in color; be sure to connect the microphone to the red MIC jack and the earphone to the black EARPHONE jack.
5. To stop recording, release the trigger on the hand grip of the camera or push the red Start Button and it will pop up. The camera and Videocorder will remain in the STANDBY condition.
6. At the end of the recording session, set the Function Lever to STOP. Remove the full reel of tape from the Take-up Reel Spindle
7. To playback the recording made on the Portable Videocorder, place the full reel on the take-up reel spindle and place an empty 5-inch reel (RH-5V) on the supply reel spindle of any SONY CV-2000 Series Videocorder. Rewind the tape to the beginning, and then play the tape in the usual way.

Note on reel:
Rewinding, playing back and/or fast forwarding of the tape V-30D should be made with the 5-inch reel Model RH-5V. If you operate the tape V-30D with 7 inch reel, Model RH-7V or RH-72V, the tape may be adversely affected.

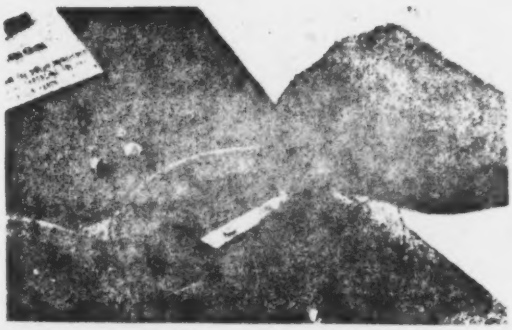
Automatic Shut-off Switch

At the end of the tape, or when the tape breaks out, the automatic shut-off switch acts and the picture on the viewfinder disappeared (the Record Lamp on the camera lights on and the DV-2400 Videocorder remains in the record mode). In this case be sure to set the Function Lever to the STOP position, otherwise the batteries are drained as the Videocorder mechanism is still on.

To wind tape remaining on the supply reel

In many cases there may be a quantity of tape left on the Supply Reel at the end of a recording session. Wind the remaining tape onto the Take-up Reel as follows: Engage the Winding Handle* with the Take-up Reel by inserting the pin of the handle into the slot of the reel hub. Wind up the tape by turning the handle counterclockwise.

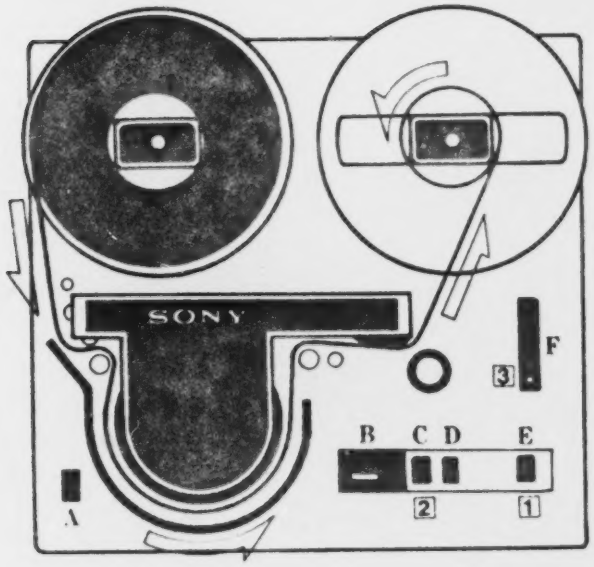
* The Winding Handle is clipped to the back cover of the Videocorder.



Tape erasing

Erasure of prerecorded tape is accomplished automatically as the tape first passes the Erase Head then moves on to the Rotary Video Head (recording head).

SONY® VIDEOCORDER®



A TV/Camera Switch
B Tape Counter
C Record Button
D Audio Dubbing Button
E Power Switch
F Function Selector

Recording

When you make recording on this Videocorder, you need only a 3 step-operation. Follow the numbers [1], [2] and [3] as marked on the control panel.

Recording TV programs

1. Connect a video monitor to the Videocorder.
2. Thread tape and set the Tape Counter (B) to [000]. Press the Power Switch (E) [1].
3. Set the TV/Camera Switch (A) to TV.
4. Adjust the video monitor.
5. Holding the Record Button (C) down [2], move the Function Selector (F) to PLAY/REC [3].

Tape playback

1. Connect a Video monitor to the Videocorder. Thread tape and turn the machines on.
2. Adjust the video monitor.
3. Move the Function Selector (F) to PLAY/REC.

Recording with the video camera

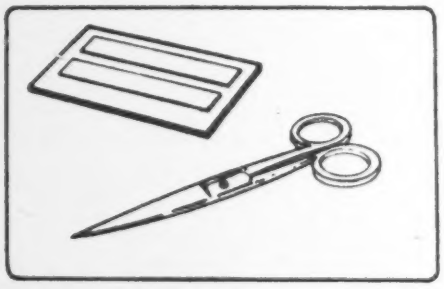
1. Connect a video camera and a video monitor to the Videocorder.
2. Thread tape and set the Tape Counter (B) to [000]. Press the Power Switch (E) [1].
3. Set the TV/Camera Switch (A) to CAMERA.
4. Point the video camera toward the subject and adjust the video camera for best picture.
5. Holding the Record Button (C) down [2], move the Function Selector (F) to PLAY/REC [3].

Audio dubbing

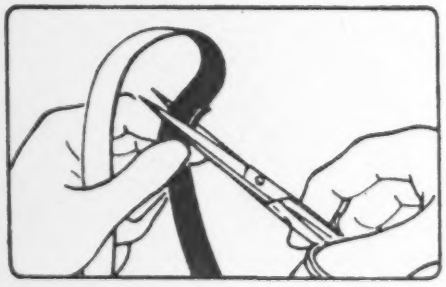
1. Connect a sound source and play back the prerecorded tape.
2. Set the TV/Camera Switch (A) to CAMERA.
3. At the desired position, set the Function Selector (F) to STOP or PAUSE. Pressing the Audio Dubbing Button (D), move the Function Selector (F) to PLAY/REC.

SPLICING TAPE

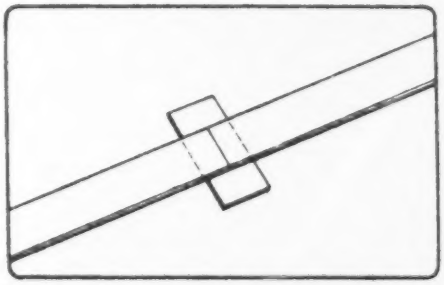
1. Use the Splicing Tape supplied with your Videocorder. (Video Splicing Tape Scotch #390 may be substituted.)
   Note: Never use regular audio splicing tape, as damage to Rotary Video Heads will result.



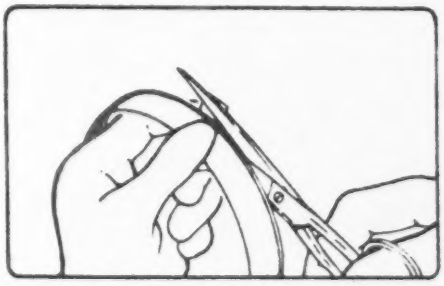
2. Overlap the tape ends approximately ⅛ inch and make a cut across both tapes at right angles to the length of the tapes.



3. Align the ends carefully so that they fit together perfectly.
4. Press a piece of splicing tape firmly over the shiny sides of the ends.
   Make sure that the joint is firm.
   Note: If any space is left between joints, the Rotary Video Head might be damaged.



5. Trim the excess splicing tape slightly into the Video Tape so that edges may be even.



VI. VISUAL LITERACY AND SPIRIT DUPLICATED MATERIALS

The concept of visual literacy simply means the ability to communicate through visuals non-verbally. That is, it shouldn't take 1,000 words to explain one picture. Or even a dozen words.

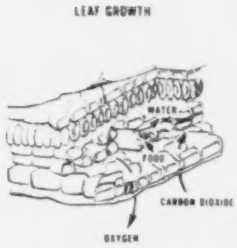
Front-page editorial cartoons and comic strips are examples of visuals that communicate non-verbally. The elements used in these can also be used when you design transparencies, slide sets, and ditto handouts, as well as large displays for hook 'n loop, bulletin boards, or flannel boards.

EXAMPLE

Verbal	Visual
CHILD ART DEVELOPMENT 1. Scribbling stage 2. Symbol stage 3. Beginning realism stage	CHILD ART DEVELOPMENT 1. Scribbling 2. Symbol 3. Realism

A GOOD VISUAL HAS...

ONE IDEA



VISUAL IDENTIFICATION

PRINT LEGIBILITY

1234567890
<> − ÷ • X
= + ∩ U
ABCDEFGHIJKL
MNOPQRSTUV
WXYZ

IMAGINATIVE DESIGN

For more information about
THE ART OF A GOOD VISUAL, write:

59

3M COMPANY | Visual Products Technical Service • Building 235-E222
2501 Hudson Road • Saint Paul, Minnesota 55119

CRITERIA FOR PREPARATION OF VISUALS
DAVI Graphics Committee

Most visuals used with a presentation are in the form of 2" x 2" slides or transparencies for overhead projection. The effectiveness of your message is greatly influenced by the graphic quality of your visuals and their ability to communicate clearly and efficiently. To ensure the highest quality, some guidelines should be followed during the preparation of your visual materials.

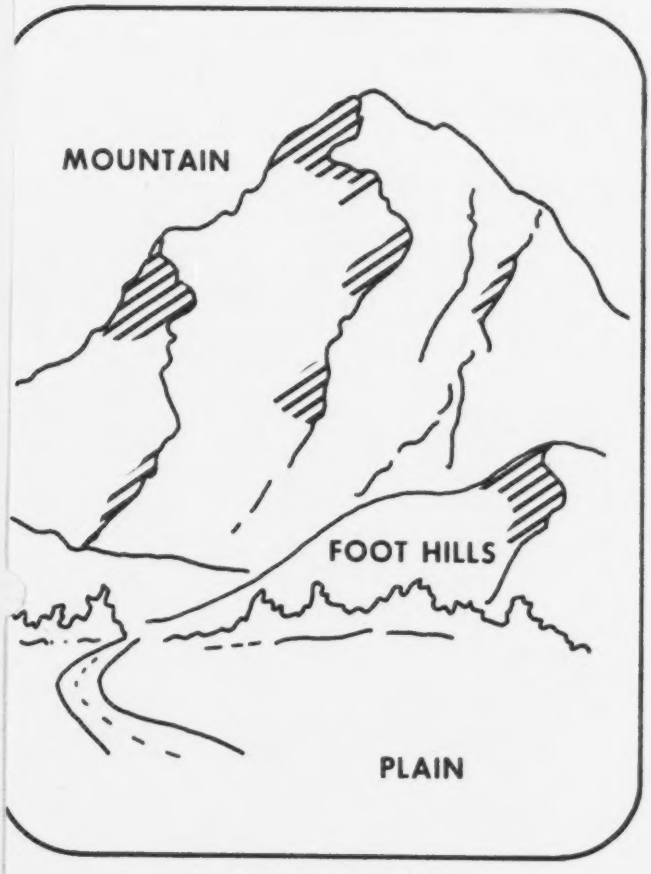
1. Limit each visual to one, unified idea to avoid confusion.
2. Plan visuals so that their longest dimension will be horizontal. It is difficult to view vertically oriented materials in low ceiling rooms.
3. Any copy of more than five or six words is more readable if both capital and lower case letters are used rather than capitals only.
4. Use a plain, vertical letter style without embellishment except where emphasis or emotional impact is desired, and then exaggerate the size. Avoid script letter styles and italics because they are difficult to read.
5. Limit your smallest lettering to a minimum of ¼" in height, 1/32" in thickness of line, and at least 3/8" in the space between lines.
6. Letters should be about as wide as they are high (except for obviously narrow letters such as the capital "I, E, L," etc., and the wide letters "M" and "W"), and uniform thickness throughout. Very heavy letters are as difficult to read as very light letters.
7. Space lettering so that the areas between letters are adequate for greatest legibility and appear equal for uniformness.
8. Allow one and one-half letter width for the space between words and three widths between sentences. Too little or too much space makes reading equally difficult.
9. Use maximum light-dark contrast for all lettering; black or very dark letters on a very light background or white letters on a dark background.
10. At least ½" margin is necessary between lettering and inner edge of mount (transparency) or outer edge of area to be photographed (2" x 2" slide).
11. Pictures or drawings must be large enough and obvious enough to be easily recognized by the audience.
12. Illustrations should be at least one-fourth the size of over-all area unless they are extremely simple.
13. Drawings should be bold, simple and contain only essential details.
14. Drawings should be outlined with a heavy line at least 1/16" thick. Necessary details can be added in thinner lines since they should appear less important. But, many thin lines confuse the clarity of image.
15. Maximum light-dark contrast is advisable for all lines; black or near black on a light background. Contrary to what was said of lettering, while drawings on a black background are difficult to interpret because we are not accustomed to seeing them in this form and cannot quickly make the transposition.
16. Color is important, but it should be applied in flat areas rather than in graduated tones or elaborate shading.
17. Color combinations that clash, create annoyance in the audience and interfere with clear perception of the message.

After your visuals are completed, try them out with a small test audience. Are they readable and understandable? Is the graphic quality satisfactory? Will they do justice to the rest of your presentation?

THE MAKING OF A GOOD VISUAL

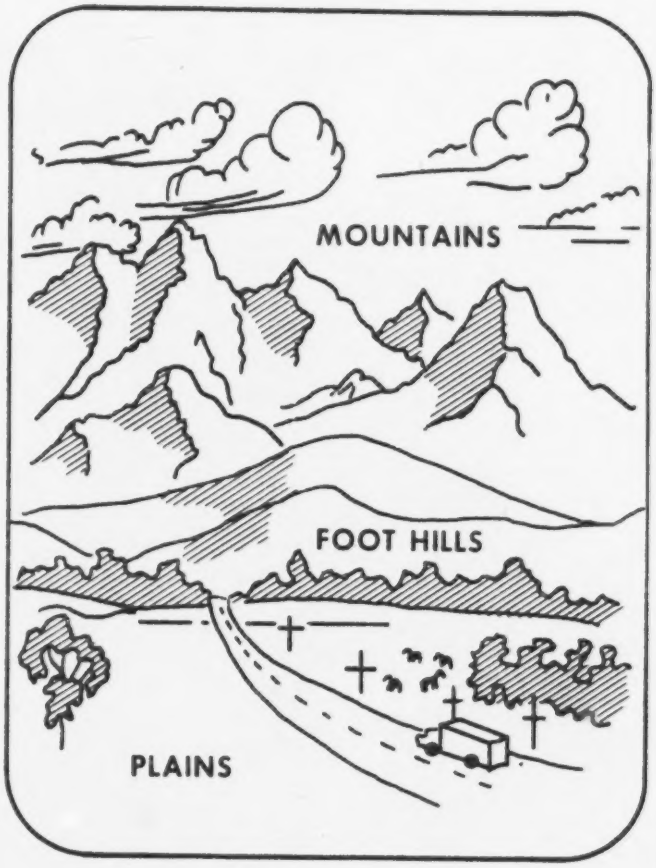
The most dramatic transparency originals are those which illustrate a single thought or comparison. . the page contains too much detail or too many ideas, its value as a communications tool is lessened.

GOOD



Every line is useful

POOR



Too many lines and too much detail

.INE THICKNESS AND TYPE SIZE

In general, the smallest image seen on the screen must have a height of one inch for every 30 feet of viewing distance. The "weight" of the image must be compatible with the image height.

More specifically, here are some criteria found to insure the best performance from the 3M Visual Communication System:

- Solid black lines must not be over 1/8 inch thick.
- Where sentences are used, a maximum of 9 per page should be the rule, preferably less.
- Minimum type size should be: title - **24 POINT,** information on page - **14 POINT.** Larger type may be used.

344-1085-450

LITHO IN U.S.A.

To think what I could have been!'

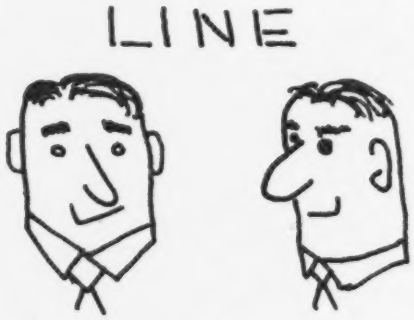
INSTRUCTIONAL GRAPHICS

The application of visual design can be incorporated into many of your teaching materials. In this section we will try to apply "good" design in producing multiple instruction sheets. These will be in the form of two methods of spirit duplicating, a "ditto" and "thermal" process.

Elements of Design

Functions

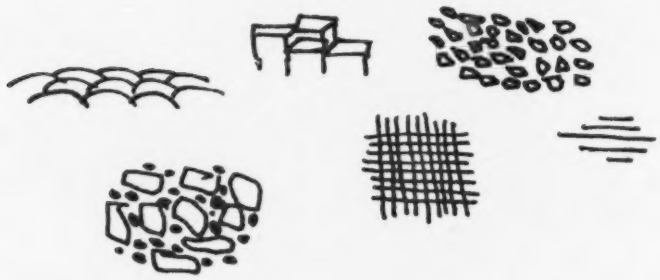
To convey information
To define outer edges of a shape (outline)
To emphasize three-dimensional quality, imply solidity
To show space (converging or tapered lines)
To form a texture



Functions

To define elements of shape, line, texture, or colors
To show space
To show changes in shape
To define the intrinsic light or dark of an object
With plane to create illusion of volume or solidity

TEXTURE



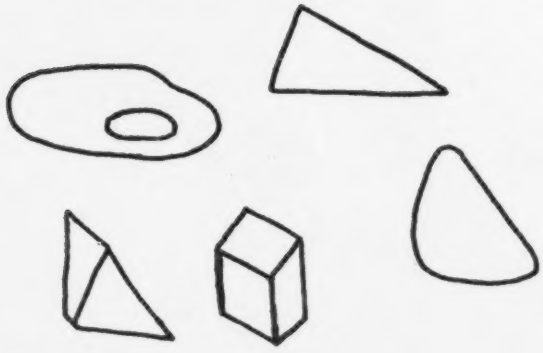
Functions

To define a shape, line, or value
To show space

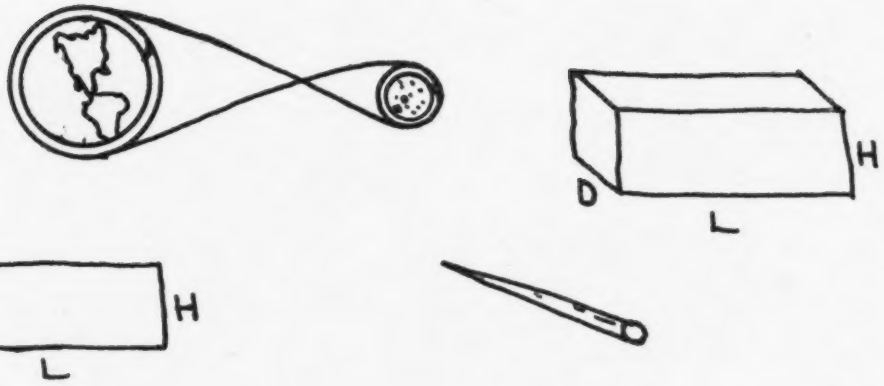
SHAPE

Functions

To emphasize three-dimensional form (shape as an area of shading)
To show space (large and small shapes, overlap, tapered shape)
To symbolize an object or idea



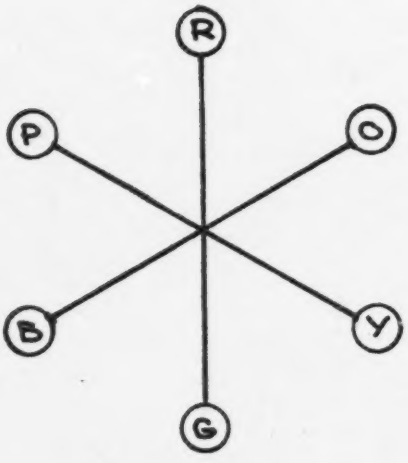
SPACE



Functions

Illusion of no depth
Illusion of limited depth
Illusion of limitless depth

COLOR



Three Aspects of Color

Hue, the identity of the color
Intensity, the brilliance of a color (purity and strength)
Value, lightness or darkness of a color

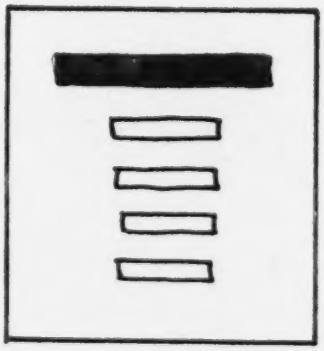
Functions

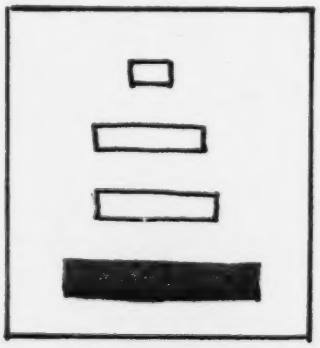
To create space (advance and recession)
To define a shape, line or texture
To create specific emotional responses and psychological effects

Principles of Design

Rhythm: Movement marked by regular recurrence of, or regular alteration in, elements

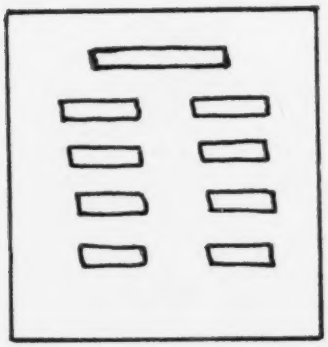
Dominance: That part which is most easily perceived through some outstanding difference from the rest of the design



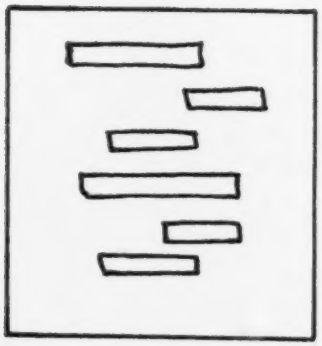


Balance: Visual equilibrium

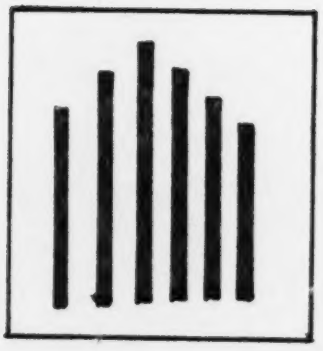
formal

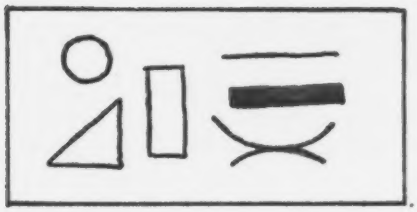


informal



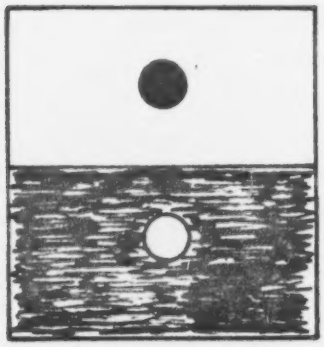
Transition: Gradation whether abrupt or gradual

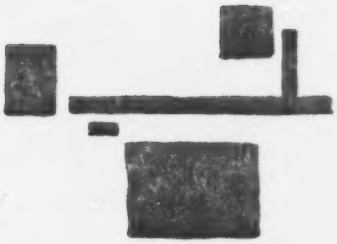




Variety: Diversity or difference of elements in varying degrees

Contrast: Opposition of elements in varying degrees



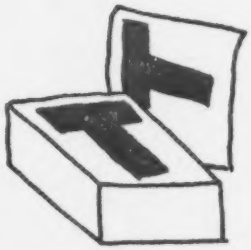


Unity: The harmonious relationship of all elements

Printing

Relief printing with the raised surface producing the impression.

Intaglio printing with the recessed area producing the impression.



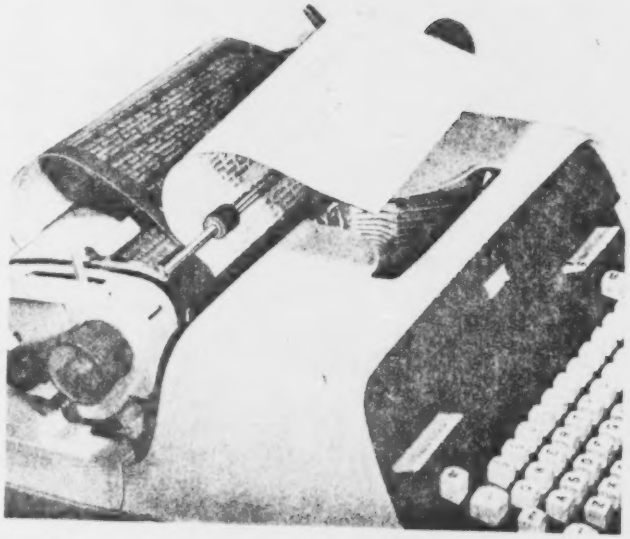
Planographic printing with a flat surface producing the impression. Used in lithography (offset) and spirit duplicating.

Stencil printing with ink forced through the stencil to produce the impression. Used in mimeograph printing.

Printing of multiple copies that you have designed can be printed either by lithography (offset), spirit duplicating or mimeograph.

HOW TO TYPE DIRECT PROCESS (Spirit) MASTERS ON DITTO MASTERSET

REMOVE TISSUE. Insert Masterset into typewriter so that keys strike the plain uncarbonized sheet of the Masterset. This makes a carbon deposit in reverse on back of the master sheet on which you type.



Either the open end or the closed end of the Masterset may be inserted first into the typewriter. If the open end is inserted first, corrections will be easier to make while the Masterset is in the typewriter since the sheets can be separated without the necessity for tearing the closed end.

The best masters will be made if the typist uses a firm, even touch. Variations in touch will result in variations in the quality of copy produced.

Noiseless as well as standard typewriters make good DITTO masters. Typewriters having "touch control" should be set at the stroke which provides sharp, even characters. This setting varies with the operator's touch.

After typing, remove Masterset and tear off and discard carbonized sheet. Place the master on the duplicator with the reverse carbon impression exposed, and run copies according to machine operating instructions.

HOW TO CORRECT A DIRECT PROCESS MASTER

When correcting a Direct Process master, it is always necessary to correct the carbon deposit on the reverse side. It is also desirable to correct the image on the front of the master to facilitate proofreading.

There are several methods of correcting masters. Here are two which are widely used:

USING RAZOR BLADE AND SOFT ERASER. With a razor blade or razor knife, scrape away as much of the carbon image as you can without damaging the master paper. Remove remaining carbon with a soft eraser. An eraser shield may be used to isolate the error, if desired. Next, tear off an unused corner of the carbon paper and place it face up under the error. Type in correction. (To assure bright reproduction, strike in the correction two or three times.)

USING INK ERASER. Use eraser shield to isolate error. Rub out error with ink eraser. A slight purple smudge will appear, but will not reproduce when copies are run. Follow above instructions for typing in correction with a fresh piece of carbon.

HOW TO DRAW A DIRECT PROCESS MASTER

Fold back carbon from under master before sketching or drawing.

Pencil preliminary sketch lightly on master sheet only.

After drawing is laid out, fold carbon back into place, back it up with three sheets of plain paper, and retrace drawing with a hard (No. 6H) pencil or ball point pen. Work on hard surface—a glass or metal plate will give best results.

Check master occasionally to make sure enough pressure is being applied. Light or broken lines indicate insufficient pressure.

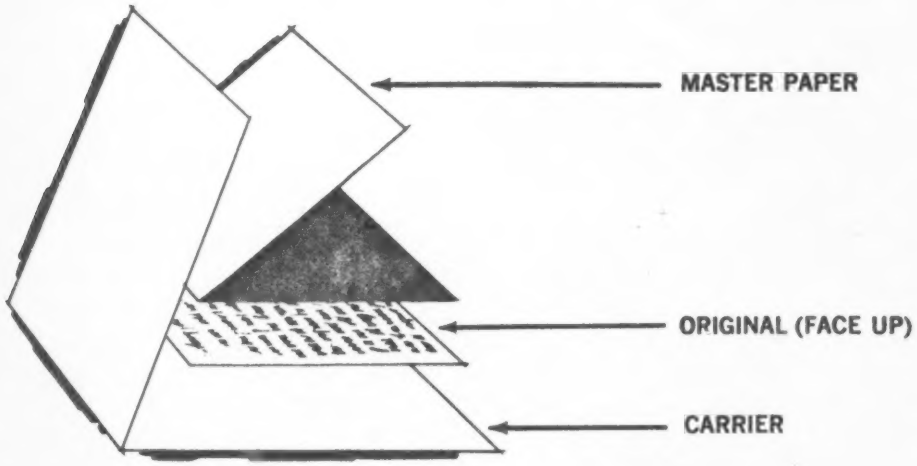
TRANSOFAX PROCESS

COLUMBIA

DITTO MASTER

This unit is designed to produce a hectograph duplicating master from almost any original, whether opaque or two-sided, providing the image is "faxable."

ASSEMBLY INSTRUCTIONS REFLEX UNIT



1. Place original face up in carrier. Use carbon base ink on original
2. Place Reflex unit on top of original as illustrated above. Enclose assembly in carrier by folding hinged top.
3. Expose by inserting carrier into equipment as shown above.
4. Remove assembly from carrier and carefully **"peel" carbon sheet from master.** Do not peel master from carbon—results may be weak and spotty.

Examine back of master—touch up spots, etc., which may reproduce. Master may now be duplicated on a spirit type duplicator using conventional fluid and copy paper!

VII. TRANSPARENCIES AND THE OVERHEAD PROJECTOR

One of the most useful, simple, inexpensive, and common teaching devices available to the classroom teacher is the topic of this lesson. The overhead projector, developed over 25 years ago, is becoming commonplace in today's classrooms.

Before we ask you to help in listing a variety of ways the overhead and transparencies can be used in teaching, we will look at some of the kinds of hardware and software available.

Types of Overhead Projectors

As your instructor points out the characteristics of these projectors, list the important features of each.

Standard classroom model _____

_____

_____

_____

Desk top model _____

_____

_____

_____

Auditorium model _____

_____

_____

_____

Even though you may never have used an overhead projector, probably you have been in a number of classes where it has been used. Use the space below to list ways the overhead projector can be used in teaching. You may suggest methods useful in teaching your subject area, as well as those for other areas.

Uses of the Overhead Projector and Transparencies

THE OVERHEAD PROJECTOR
DO'S AND DON'TS

DO - Put the projector and screen diagonally across the front of the room to provide maxiumum visibility. Keep the light path perpendicular to the screen. Room lights may be left at normal level.

DON'T - Turn the projector on and leave it on. Use the light only when you want to bring attention to the screen. Even a lighted screen with no image is distracting. Observe how attention goes to the screen when you switch on the light, then back to you when you switch it off.

DO - Place the transparency squarely on the projector stage before turning the light on.

DON'T - Turn on the light, then fumble around trying to position the transparency.

DON'T - Stand with your hands leaning on the lighted stage.

DON'T - Make rapid, distracting gestures on the stage. Be deliberate in pointing out information, then get off. A pencil is a handy pointer for material on the stage, showing up well on the screen.

DO - Use a grease pencil or felt-tip pen to add information or underline key words for emphasis.

DO - If your hand tends to shake when holding the pointing device, touch it to the transparency to steady it.

DO - In general, keep your information toward the top of the stage. That brings it to the top of the screen for optimum visibility.

DO - Use the technique of revelation. This is accomplished by covering all but the first point to be discussed. Place a plain sheet of paper over the transparency, then move it down to uncover only what you want to show and discuss at the moment. Many presentations are less effective because the audience reads ahead.

DO - Remember that simplicity is important. A transparency can confuse if it is too cluttered.

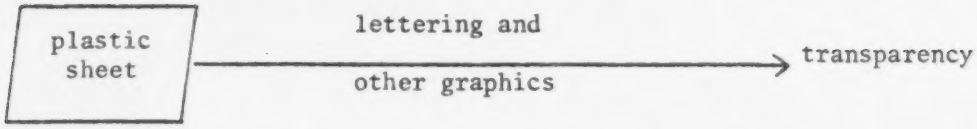
DON'T - Use color only for the sake of color.

DO - Use color to emphasize concepts or separate ideas. Some simple techniques include; felt pens for marking the film surface, adding color to lines on the transparency with color grease pencils or color transparent film and tapes, or by putting a sheet of colored film over the transparency to give a color background.

DO - Remember that use of the overhead is limited only by your ingenuity and imagination. It is a challenge and a stimulus to put some extra sparkle into a presentation.

DO - Try leaving the overhead in your conference room or classroom and use it wherever possible instead of the blackboard. Then try taking it out after a few weeks and see how much you and the others miss it.

Direct Production Transparencies

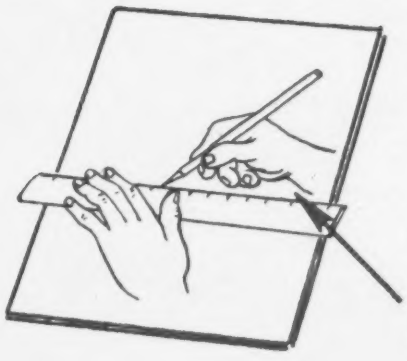


Direct transparency production does not use a machine. All of the graphics are done directly on the plastic sheet. The kinds of materials to use are listed below. Your instructor will demonstrate some of them.

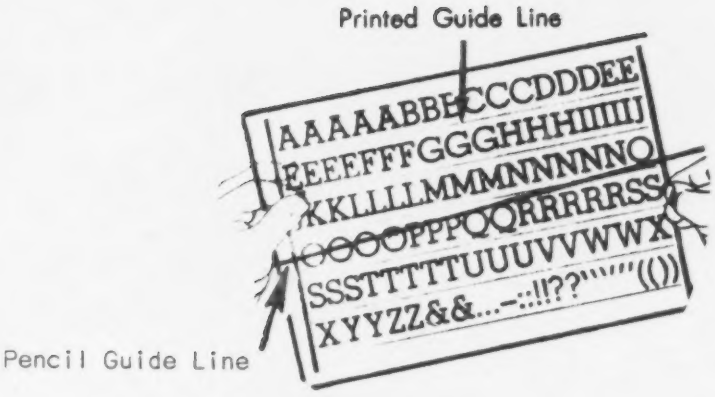
For Lettering	For Drawing	Color
Felt pens	Felt pens	Felt pens
Grease pencils	Grease pencils	Color adhesive film
Dry-transfer letters		Applicolors

Since dry-transfer letters are so useful in making transparencies, instructions for their use are listed below.

DIRECTIONS



DRAW A LIGHT PENCIL GUIDE LINE on the surface to which lettering is to be applied. Some transfer letters make use of their protective sheet as a guide for aligning the letters. IF LETTERING ON ACETATE, draw the guide line on a sheet of paper or cardboard and place under the acetate. REMOVE BACKING SHEET.



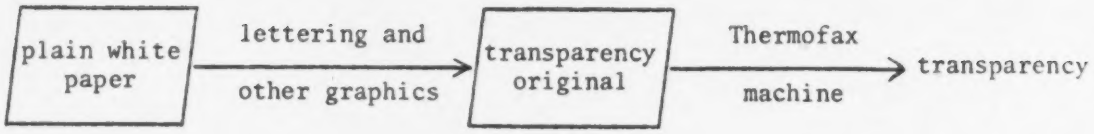
POSITION LETTER SHEET over surface to be lettered on so that the first letter is in the desired location. Align guide line of letter sheet with pencil guide line. This will assure perfect alignment.

LETTERS APPLIED TO PAPER OFFSET MASTER SHOULD be gone over with a soft cloth saturated with rubber cement thinner.

RUB LETTER DOWN with the thumb nail or pencil point. Try to confine rubbing to letter area only.

CAREFULLY PEEL OFF THE LETTER SHEET, leaving the desired letter in place. If letter fails to completely transfer, return sheet to surface and repeat the rubbing. CAREFULLY REMOVE PENCIL GUIDE LINES.

Indirect Production Transparencies



Types of Originals

a. Pre-printed. Any material printed in black ink can be used as an original. The important thing to remember is that the INK MUST CONTAIN CARBON. Thermofax machines can only copy print that is carbon-containing ink. List below some of the pre-printed sources you can use as originals.

_____

_____

_____

_____

_____

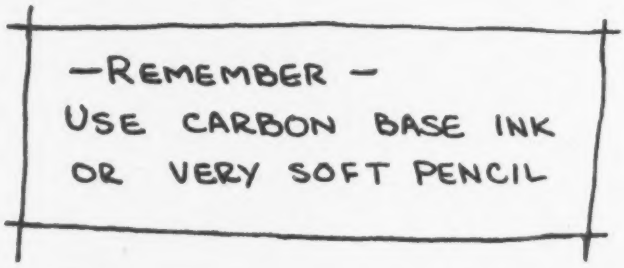
_____

_____

_____

_____

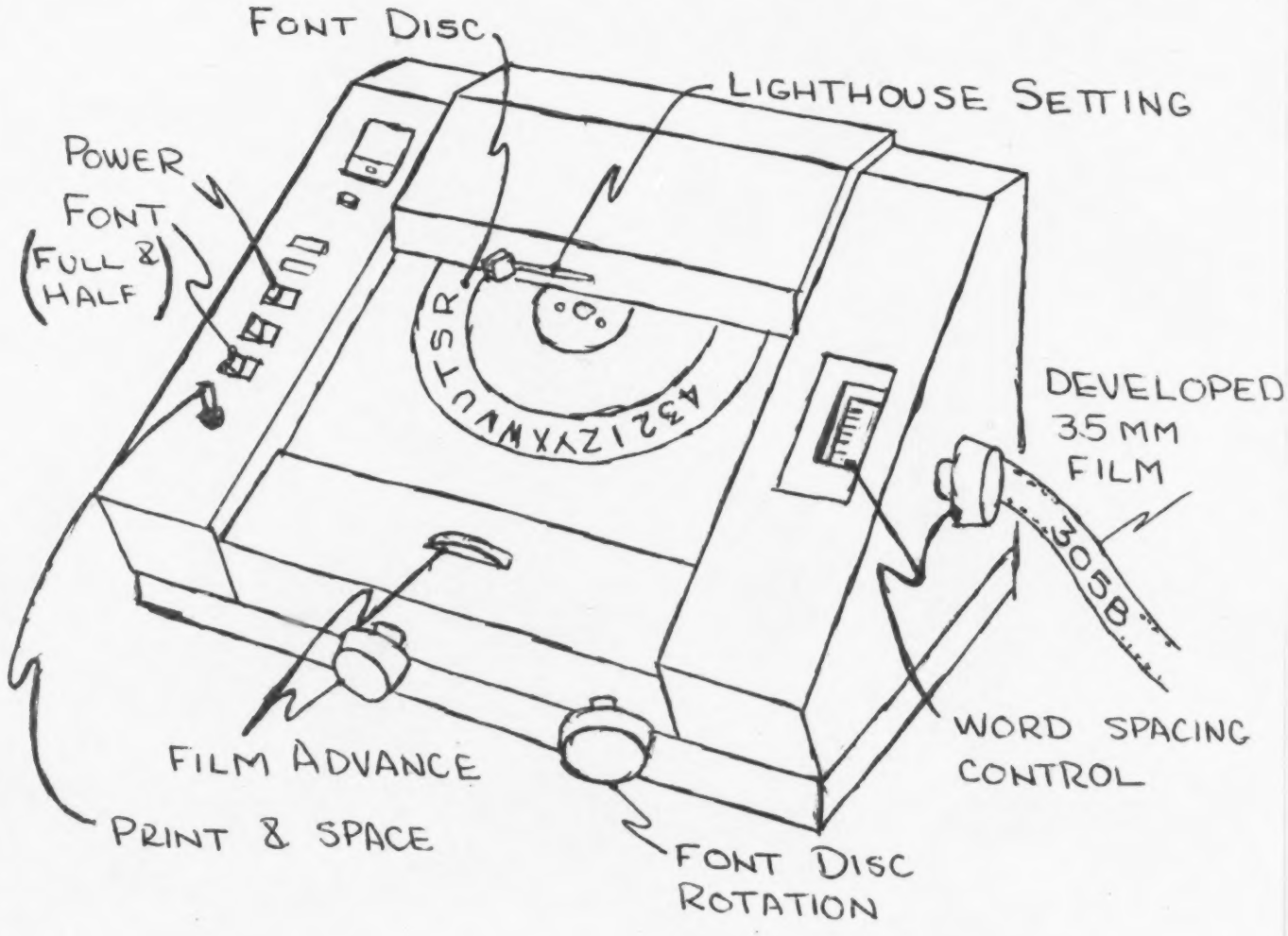
_____



b. Do-it-yourself originals.

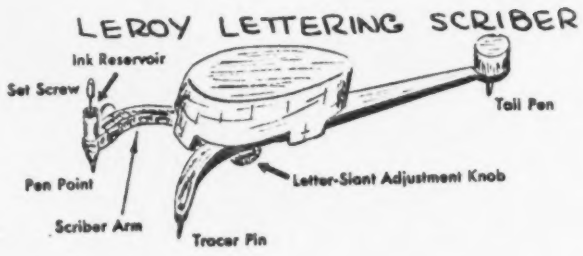
Freehand lettering - Use carbon-base ink (India or black drawing ink) or a pencil (HB, soft lead pencil or IBM test scoring pencil). Follow the principles of design in the lesson on graphics.

VariTyped letters - Instructions for using the VariTyper pictured below are above the machine in the Instructional Resources Center.



LeRoy lettering - Follow instructions below--AND THOSE AT THE DRAWING TABLES.

a. Select pen point and stem. Each are marked with small numbers, and both point and stem must be the same number.



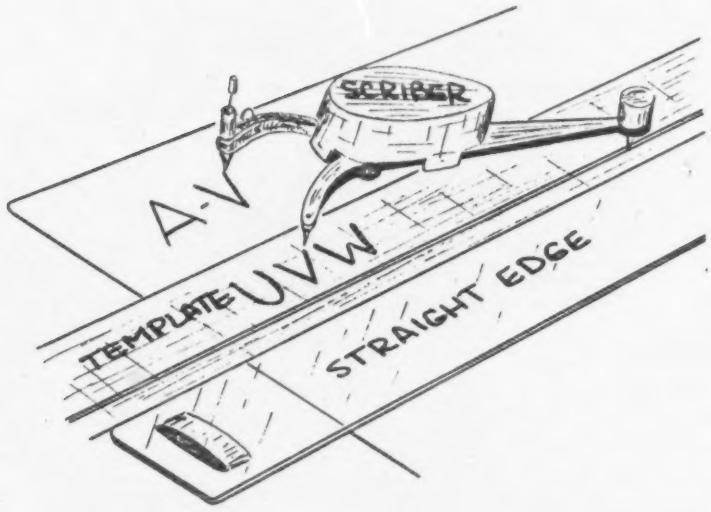
b. Insert point into hole on end of scriber. Push down until it is firmly seated.

c. Fill ink reservoir.

d. Select desired template.

e. Attach straightedge to drawing table with masking tape.

SPACING LETTERS takes practice. Practice guessing, don't try to measure. Keep the spaces as similar as possible from one letter to the next.



Set-up For LeRoy Lettering

Dry-transfer letters - Refer to page 69 for instructions on using these.

Polarized Transparencies

Polarized transparencies are made from originals, as described above. Then small pieces of special polarized plastic are attached to the finished transparency. When a polarizing spinner (on the overhead projector) is used in combination with polarized transparencies, a variety of kinds of motion may appear on the screen.

Color-Lifted Transparencies

Using pictures in magazines and seal-lamin or contact paper, it is possible to make a transparency in multi-color. In fact, if you do a good job the finished transparency should look as good on the screen as it did in the magazine. Instructions for making color-lifted pictures are on the next page.

Either seal-lamin (applied with the dry-mount press) or contact paper can be used to make the transparency. The results are very similar, although contact paper makes a heavier, more sturdy transparency. In either case the finished transparency must be sprayed with a clear lacquer on the back side. This makes the finished product clearer, and if contact paper was used, covers the sticky adhesive.

Instructions for Making Color-Lifted Transparencies

1. CLAY TEST -- find out if the magazine is printed on a clay-base paper. Some use a plastic coated paper, which will not work.
   - Moisten your finger
   - Rub on a white portion of a page
   - If a chalky white residue appears on your finger, the paper is clay coated. If not, you can't use the magazine for color-lifts.
2. REMOVE PAGE FROM MAGAZINE
3. APPLY SEAL-LAMIN OR CONTACT PAPER
   - Use normal dry-mount press technique
   - Carefully cover page with clear contact paper, being careful not to let wrinkles develop.
   - Rub entire surface with flat side of a comb, or blunt end of ball-point pen. <u>Failure to do this will result in grainy, unsatisfactory transparency.</u>
4. SOAK IN WATER -- a few minutes' soaking usually is enough to loosen paper. Some detergent in water will speed it up.
5. PEEL PLASTIC LIFT FROM PAPER

6. SCRUB LIFT -- until <u>all</u> white clay residue is removed. <u>Failure to do this will result in a cloudy transparency</u>.
7. LET IT DRY
8. SPRAY DULL SIDE -- use clear plastic or lacquer spray.

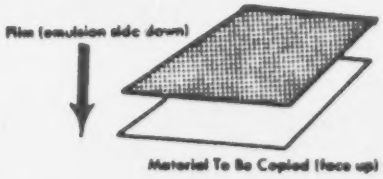
Instructions for making Water-Activated Transparencies

Here you obtain colored lines on a clear background in the following colors: Red, Green, Blue and Yellow.

Step 1:

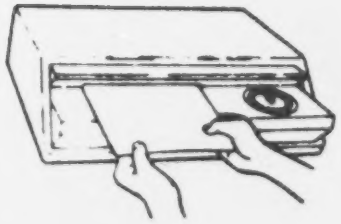
Set thermofax machine dial at 15 minutes past the hour (assuming you look at the dial as a clock).

Step 2:



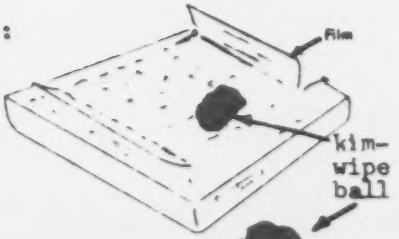
Place emulsion side (dull side) of the film against original master. Shiny side of film is thus facing you. (NOTE: there is no notch in upper right hand corner of film)

Step 3:



Feed into machine by a pushing motion as rollers grab film and original quickly.

Step 4:



Submerge film, emulsion side up, in water bath. Wash film with ball of kimwipes or soft cloth with soft motion being careful not to rub off the original master print.

Step 5:

Dry film with kimwipe ball or soft cloth in a dobbing motion as this will speed up drying and not make your completed transparency spotty.

NOTE

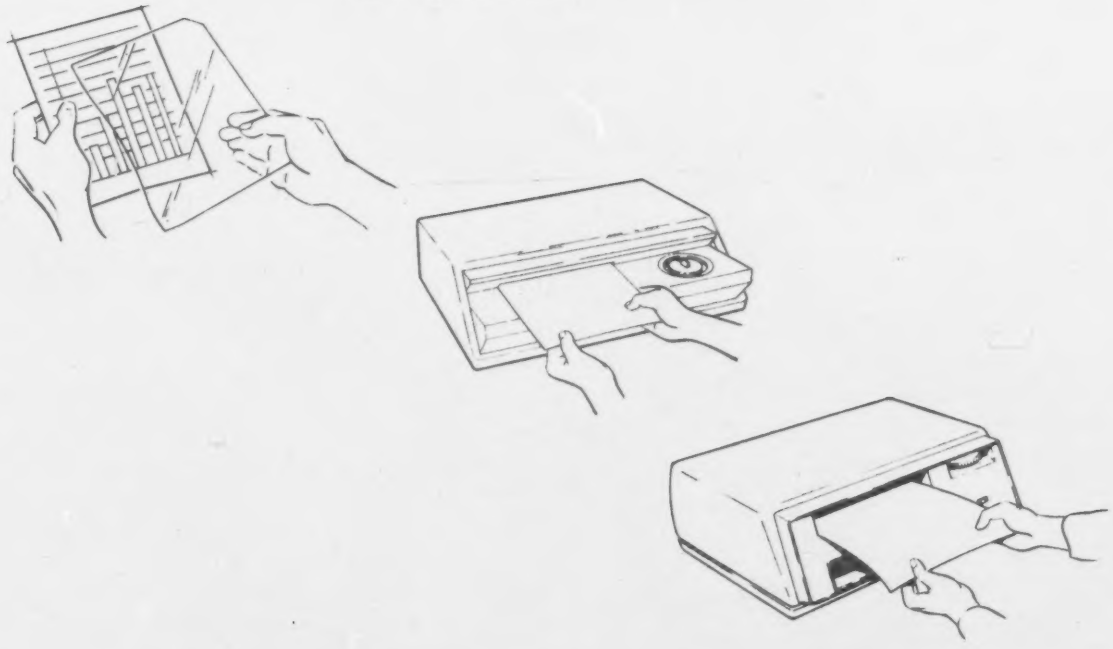
THE TRANSPARENCY PLASTIC IS THE SAME SIZE AS A SHEET OF TYPING PAPER, 8 1/2 X 11 INCHES. THE STAGE ON THE OVERHEAD PROJECTOR IS 10 X 10 INCHES. IF YOU WANT THE WHOLE TRANSPARENCY PROJECTED AT ONE TIME YOUR DRAWING MUST BE SMALLER THAN 10 X 10 INCHES.

MAKING INFRARED TRANSPARENCIES

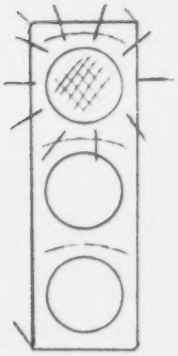
Place the transparency sheet on top of the side of the original to be copied. The notch must be at the upper right corner as shown in the diagram and as indicated by the dark corner on this page.

Pass the transparency and original through the copy machine with the transparent sheet up. Set the dial at the appropriate position for the transparency film being used. Suggested dial settings are in the section describing the films.

NOTE: The original to be copied must use image material compatible with the infrared process. Compatible materials include black printer's ink, graphite pencil (No. 2 is best), carbon-containing typewriter ribbon, 3M Brand felt pens and India ink. If in doubt, try the original on any 3M Brand copying machine.



... TO MAKE TRANSPARENCY ORIGINALS



DON'T USE

ditto copy

ball point pen

felt pens

fountain pen

grease pencil

DO USE

India ink

HB (soft) pencil

Vari typer

"107" copy from copy machine

Typewriter copy

Newspaper copy

Mimeograph

Xerox copy

You may have trouble making transparencies from originals done on Corrasible Bond (erasable typing paper).

Use ordinary typing or ditto paper for transparency originals. If your transparency original isn't dark enough to make a good transparency, make a "107" copy of it. Use the copy as the original.

Models

Made from clear or colored plastic, these models have moving parts that illustrate more vividly the concepts that are to be taught. You can construct models of your own, or purchase them. Listed below are word descriptions of models that can be purchased.

SLIDE RULE—Features the four most commonly used scales—A, B, C and D, with clearly marked gradations. Projects clearly while leaving room on projector stage to work problems.
PRICE PER UNIT: $15.00 Cat. No. 1011

FOUR-CYCLE ENGINE—Functions of the four-cycle engine are more easily understood when movements are projected on a large screen. Has intake and exhaust valves and a working piston.
PRICE PER UNIT: $24.00 Cat. No. 1041

MAGNETIC KIT—Lines of force and properties of magnetism lose their mystery when explained with this unit. Students actually see flux lines take shape when kit magnets are used.
PRICE PER UNIT: $18.00 Cat. No. 1039

TWO CYCLE ENGINE — This simplest of internal combustion engines utilizes color to highlight positions and functions of parts.
PRICE PER UNIT: $20.00 Cat. No. 1040

FRESNEL LENS TEACHING KIT—Science and physics classes will benefit from demonstrations on reflection and refraction of light, plus other suggested experiments. The lens is used on 3M Brand overhead projectors.
PRICE PER UNIT: $4.95 Cat. No. 1007

ABACUS—Based on the Chinese counting device, this abacus is adaptable to teaching fundamentals of addition, subtraction, multiplication; useful when working with sets and other bases.
PRICE PER UNIT: $4.00 Cat. No. 1038

PROBABILITY DEVICE—Laws of probability in the formation of a distribution pattern are graphically illustrated with this unit. Generates either a normal or a skewed pattern by tilting device.
PRICE PER UNIT: $17.50 Cat. No. 1043

THERMOMETER — This well-constructed unit compares Fahrenheit, Centigrade and Kelvin temperature measurement. Has sliding red temperature indicator column.
PRICE PER UNIT: $15.00 Cat. No. 1016

D.C. VOLTMETER-AMMETER—Dual ranges (0-5, 0-20 volts, 0-1, 0-10 amps) permit great versatility in application. Banana jacks simplify connections.
PRICE PER UNIT: $57.00 Cat. No. 1042

Shadow Plays

In elementary school the students may enjoy giving shadow plays. The players are not visible to the audience, but their shadows are. Using the set-up described under "Settings for Plays", the actors move in front of the projector, but behind the screen. You may or may not put a transparency on the projector.

Demonstrations

Chemical reactions, voltage and amperage measurements, temperatures, and other scientific data may be projected for the class with a special adapter on the overhead projector. Your instructor will demonstrate this.

You may also construct your own adapter using a mirror.

Opaque Objects

A number of objects that light will not go through can be used effectively on the overhead projector. Samples from the list below will be demonstrated.

Table settings with miniature tableware.
Triangles, squares, etc. for object recognition (reading readiness)
Football plays using miniature football players
How electricity flows (straw, gelatin capsules)

Settings for Plays

With a transparency you have designed you can make a backdrop for a classroom play. The screen is a white sheet, and the image is projected from the rear, in the corner of the room. The transparencies can be changed if different backdrops are required during the play, from one scene to another.

VIII. AUDIO TAPING & EQUIPMENT PRACTICUM

Audio tape recorders are inexpensive and find wide use in teaching and learning. Some suggestions for use are listed below:

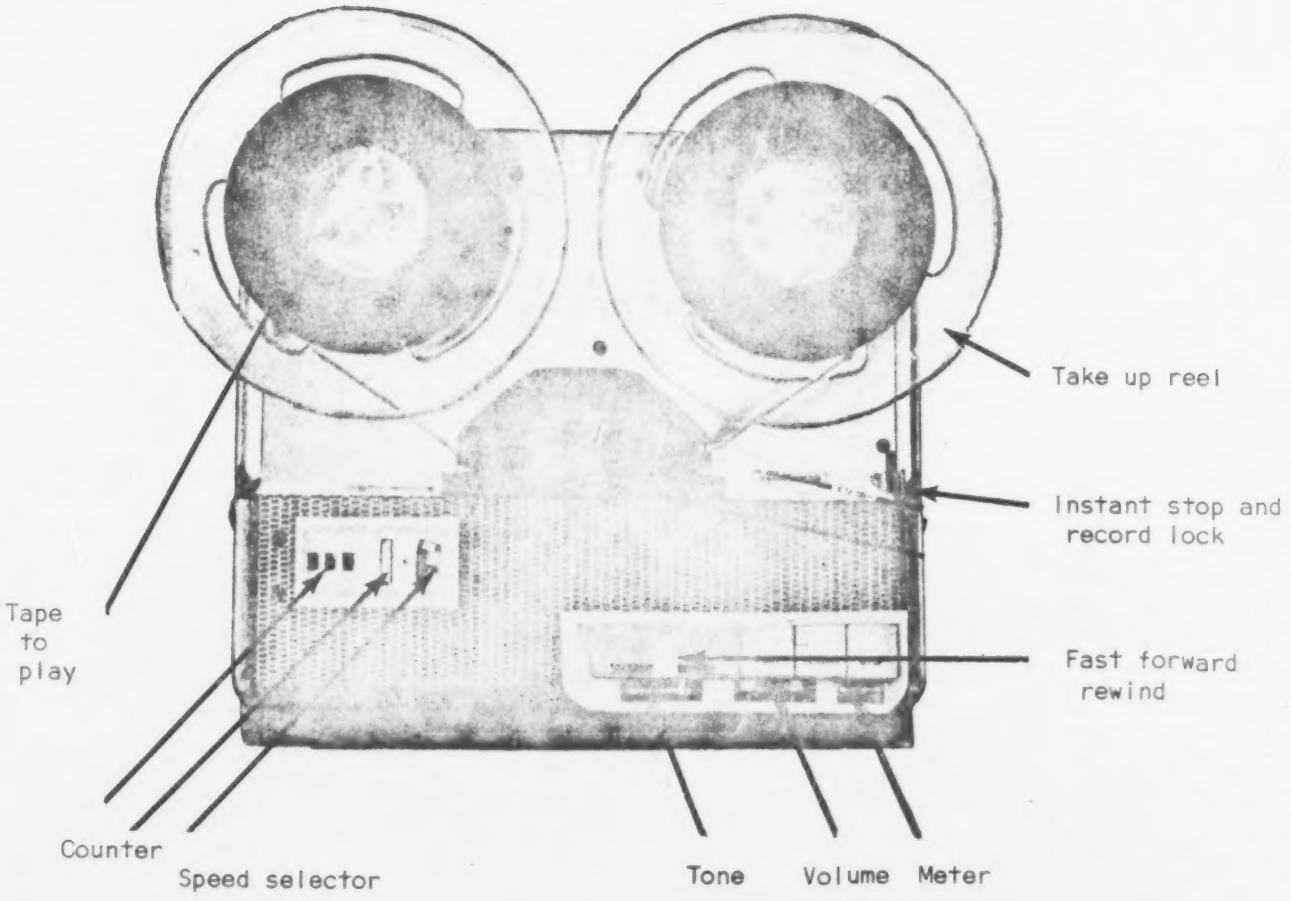
- "Grade" student essays by recording your comments on audio tape. Hand back tape along with the essay.
- Record your presentations as you teach, for self-analysis later.
- Tape guest speakers to bring into class at another time.
- Suggest that students make "audio essays" instead of writing a paper for class work.
- Create individualized instruction lessons, using audio tape as the programming guide.
- Tape students in your classes for use during parent/teacher conferences.

TWO TYPES OF TAPE RECORDERS

Cassette	Reel-to-Reel

Both types have the same capabilities. Cassette recorders are generally smaller and less expensive. Instruction sheets for both are on the following pages.

OPERATING THE WOLLENSAK TAPE RECORDER

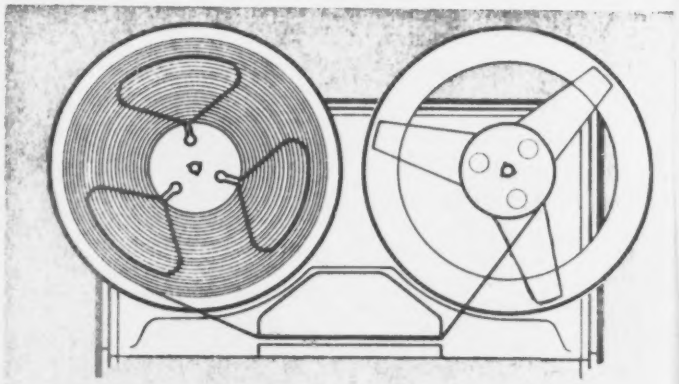


TO THREAD TAPE: →

TO RECORD:
- Plug microphone in back of recorder in INPUT receptacle
- Hold INSTANT STOP AND RECORD LOCK lever forward while depressing recording key
- Turn up volume until meter registers sound

TO PLAY:
- Depress play key
- Turn up VOLUME

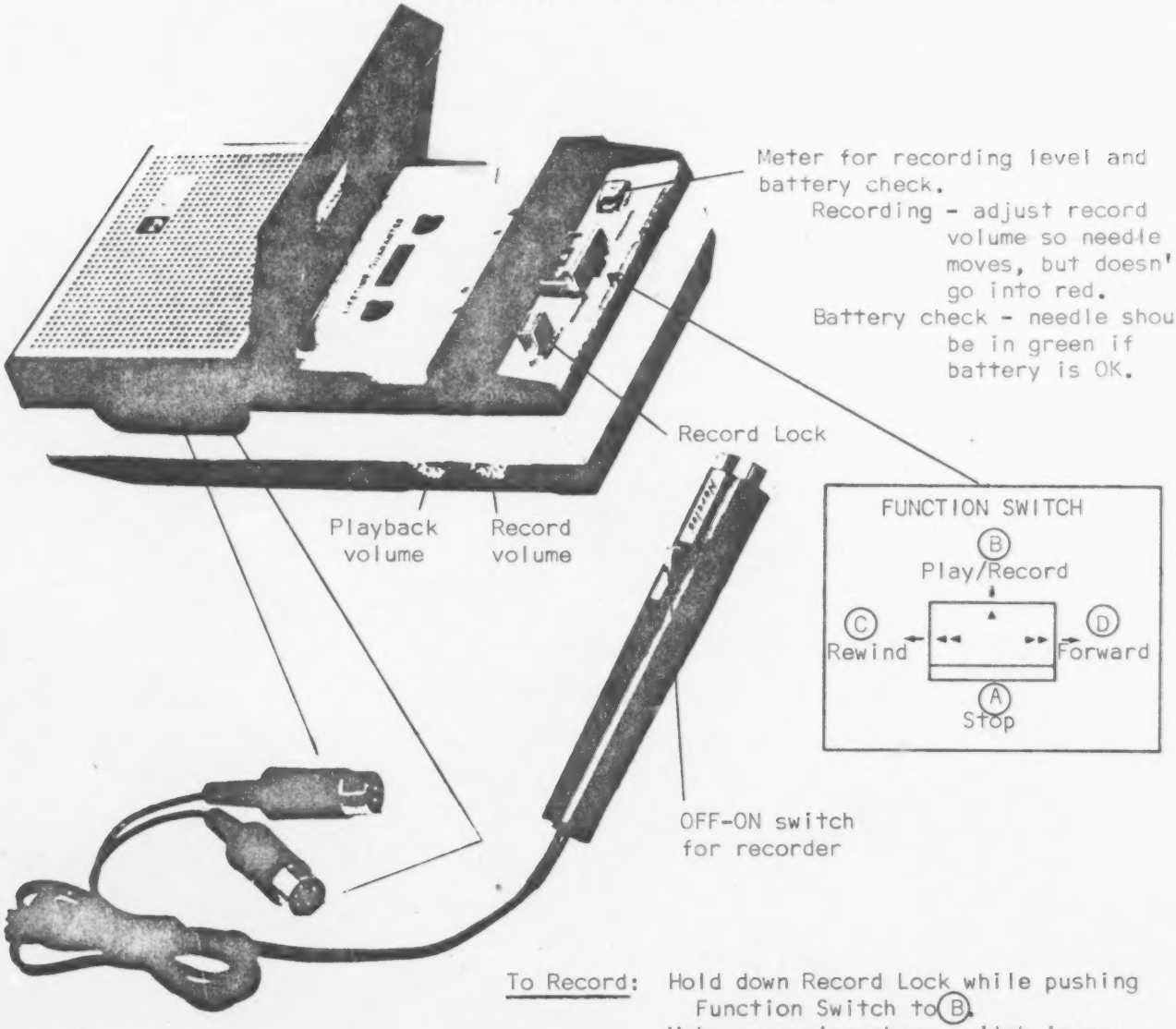
TO REWIND or TO ADVANCE TAPE FAST
- Push FAST FORWARD OR REWIND KNOB



TAPE THREADING PROCEDURE

This illustration shows the path of the tape, whether recording or playing back. The full reel always goes on the left spindle, the empty reel on the right. Tape must be threaded so that the dull, oxide coated side faces in and is against the heads, the glossy side facing out. To thread the machine, place a full reel of tape on the left spindle, a matching size empty reel on the right. Hold the tape in line with the threading slot, then lower into place.

OPERATING INSTRUCTIONS FOR CASSETTE TAPE RECORDER



To Record: Hold down Record Lock while pushing Function Switch to (B).
Make sure microphone switch is on.
Adjust Record Volume while recording.
Meter needle should move, but not go into red area.

To Rewind: Push Function Switch to (C).

Fast Forward: Push Function Switch to (D).

To Playback: Rewind portion you just recorded.
Then push Function Switch to (B).
Make sure microphone switch is on.

Equipment Practicum

	Check here if you have practiced and feel you are confident in operating the equipment	What type of software can be used in the equipment? (Super 8 film, 16mm film, transparency, tape, slides, etc.)
Super 8 "Technicolor" Film Loop Projector		
Bolex Super 8 Projector		
Kodak M-100 Sound Super 8		
Kodak Ektagraphic Super 8		
Kodak Analyst 16mm		
Graflex 16mm		
Bell & Howell "Specialist" 16mm		
Kodak "Pageant" 16mm		
Sawyer Rotomatic Slide Projector		
Opaque Projector		
Reel-to-Reel Tape Recorder		
Cassette Tape Recorder		
Overhead Projector		

IX. FINAL PRESENTATION

The final presentation is designed to help you tie together many of the ideas we have discussed, and media you have produced. Some guidelines for the presentation are listed:

Plan to teach about 5-8 minutes.

Use at least two of the media discussed in 305b. A check list below will help you remember the types of media:

- transparencies
- slides
- flannel board
- hook 'n loop board
- television

Explain to the class the age, grade level, and background of the target audience. Ask the class to play roles as members of the target audience.

Practice with all of the equipment you plan to use--before the presentation--so your presentation is smooth.

Hand in (for the instructor to keep) a typed cover sheet and script for the presentation.

Also, hand in your evaluation sheet with your name, date, and title of presentation.

FINAL PRESENTATION

EDUCATION 305B

SAMPLE

Alfred E. Neuman
NAME

February 10, 1971
DATE

Biology — 10th
SUBJECT AREA OF PRESENTATION — GRADE

Stem Structure
TITLE OF PRESENTATION

Transparencies, 35mm slides, ditto handout
MEDIA USED

BEHAVIORAL OBJECTIVES:

Students should be able to:

1. List the names of structures in a herbaceous stem
2. Describe the functions of structures in a herbaceous stem

Mr. Allen
305B INSTRUCTOR

305B FINAL PRESENTATION EVALUATION SHEET

1. Scope of Presentation

Was the topic too broad or too narrow?
Did the student choose something too complicated or too simple to fit the five to eight minute presentation in class?

2. Organization and Continuity of Presentation

Was the presentation organized so that material presented early helped the understanding of material presented later?
Were terms defined?
Did the student provide an overview so that the audience knew how the presentation fit into a larger plan?
Did the presentation flow smoothly?

3. Creativity and Productivity Required

Was the presentation unique, or very similar to those done in the past?
Did it show a new approach to a teaching problem, or was it only a variation on a standard approach?
How much time, effort, and creativity did the student use?

4. Choice and Amount of Media

Were the proper teaching aids used at the right times?
Were slides, transparencies, films, and other materials chosen for maximum effectiveness in each case?
Was media under-used or over-used?

5. Quality of Materials Produced

Were the materials of good quality, reflecting care in the preparation?

6. Proper Technical Use of Media

Did the student teach effectively with media?
Were projector(s) placed so that the largest number of viewers could see well?
Was the projected image squarely on the screen?
Was the image readable, clear, and filling the entire screen?
Were images projected right-side up and not reversed?

7. Behavioral Objectives

Were the objectives stated in behavioral terms?
Did the student's presentation meet the stated behavioral objectives?

8. Overall Effectiveness

Did the student demonstrate effective teaching techniques, (tone of voice, eye contact, ability to project a warm, pleasing personality)?

SCRIPT FOR
FINAL PRESENTATION

EDUCATION 305B

NAME

DATE

SECTION NUMBER DAY

SUBJECT AREA OF PRESENTATION GRADE

BEHAVIORAL OBJECTIVES:

305B INSTRUCTOR

Student Name: _____

Day: _____ Section: _____ Time: _____

Due Date: _____
(by mid-quarter)

Required (minimum)

1. Dry Mounting, Chartexing, and Laminating.....

_____

_____

2. Script.....

_____

_____

_____

3. Spirit Duplication.....

_____

_____

4. Transparency.....

_____

_____

_____

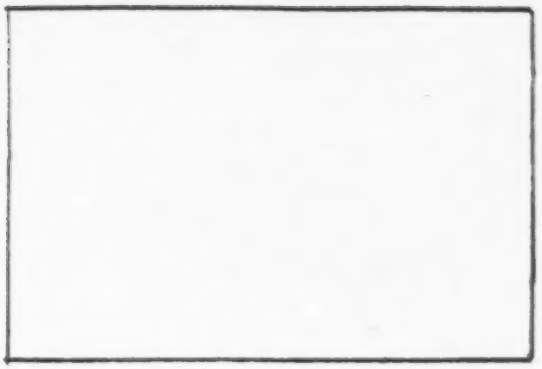
5. Final Presentation.....

Subject area of presentation: _____

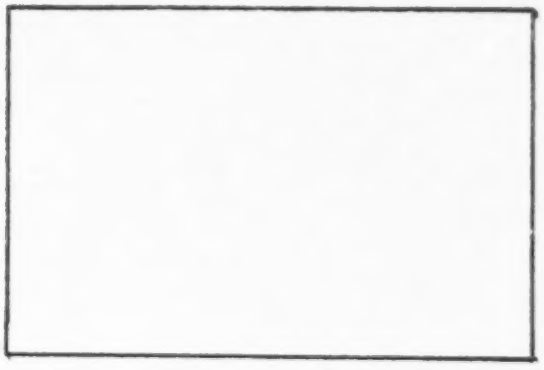
Presentation Title: _____

Grade Level: _____ Media: _____

B Contract	A Contract
_____	_____
_____	_____
_____	_____



Medium Used_____



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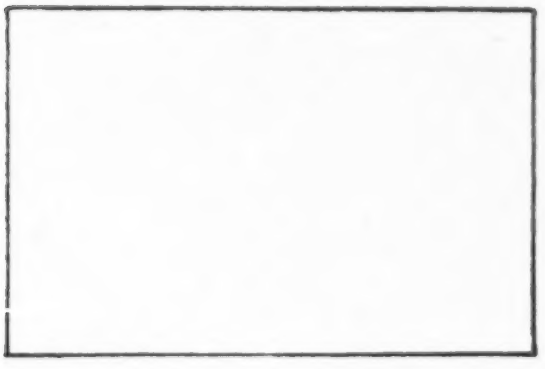

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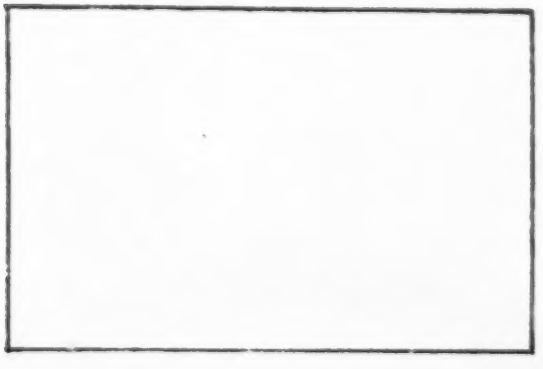

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